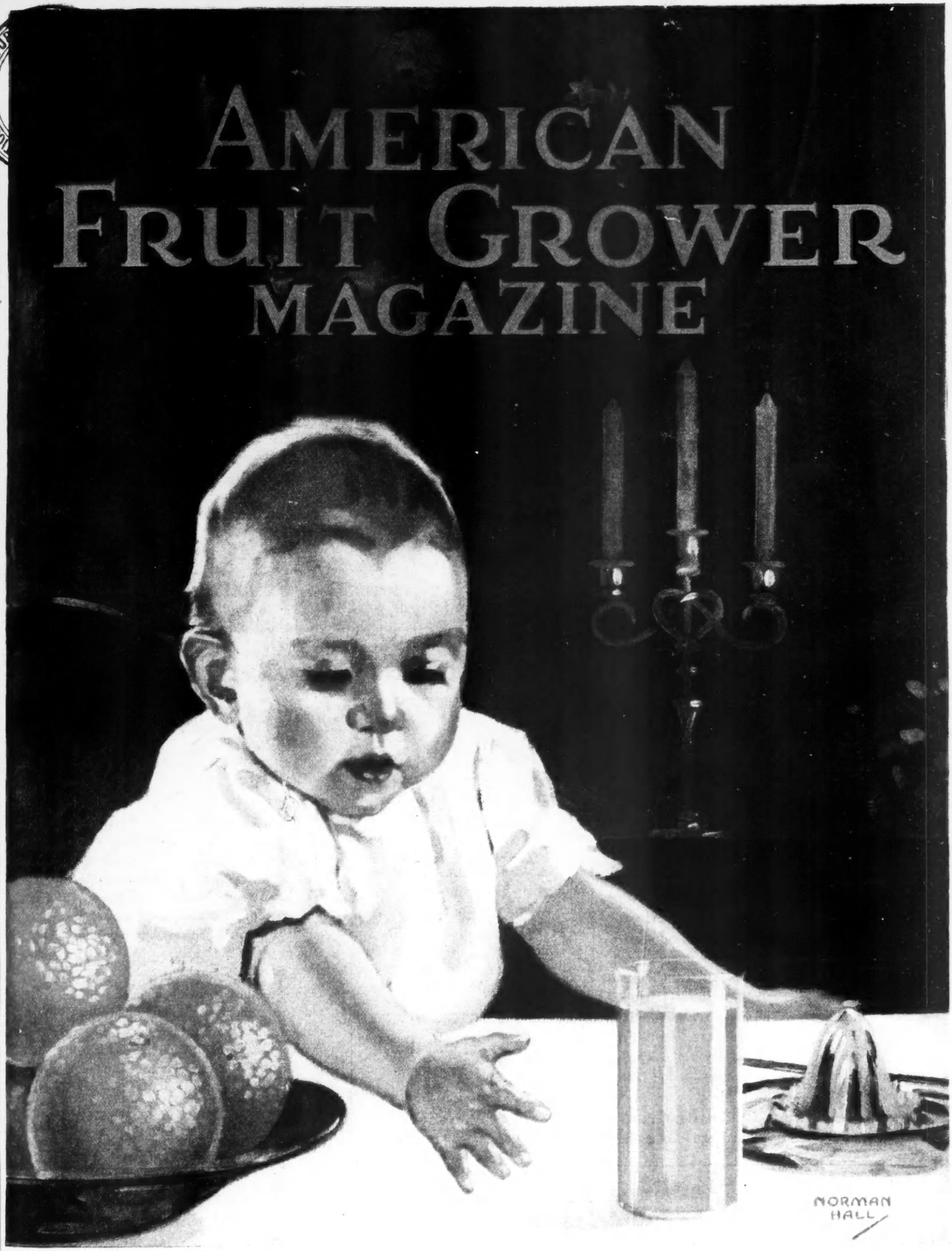
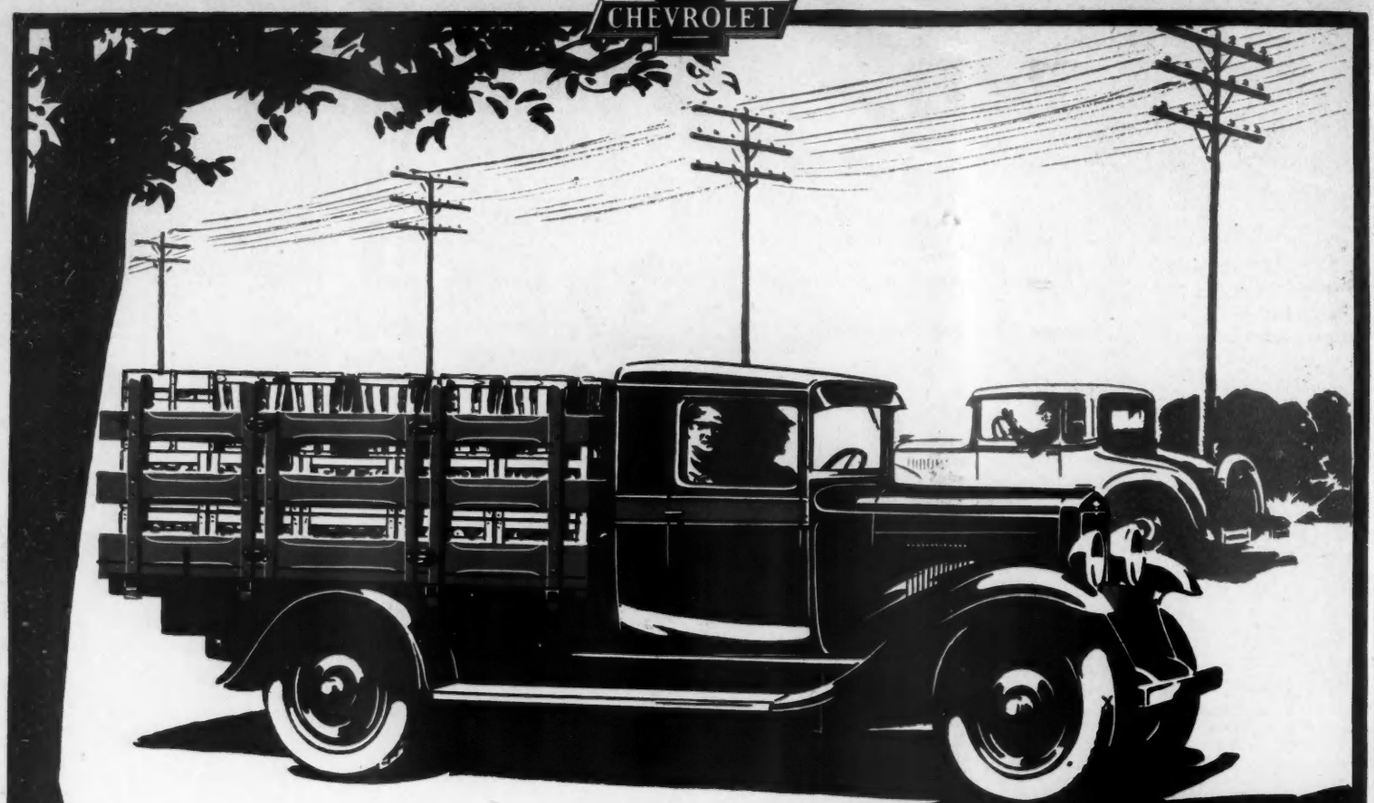
AMERICAN FRUIT GROWER MAGAZINE



June, 1930
Ten Cents a Copy

IT'S WISE TO *for Economical Transportation* CHOOSE A SIX

CHEVROLET



Extra Power . . . Greater Strength
Larger Carrying Capacity

It is only natural that so many fruit growers in every section of the country should find it wise to choose a six-cylinder Chevrolet truck. Because Chevrolet's extra power—greater strength—larger carrying capacity—and modern six-cylinder performance—make it *especially* suited for service in the fruit industry today.

Chevrolet's 50-horsepower valve-in-head 6-cylinder engine provides ample power to pull heavy loads. Six-cylinder flexibility assures quick, easy travel through traffic. Six-cylinder speed cuts down the running time to market. And six-cylinder smoothness saves the whole truck from destructive vibration, and gives it longer life.

More than that, the Chevrolet chassis is just as advanced and efficient as the engine. A heavy full-length channel steel frame accommodates extra-large bodies without excessive over-hang. Four unusually long semi-elliptic springs, set parallel to the frame, provide the correct distribution of load-weight—carry heavy, bulky loads without dangerous sidesway—and afford protection for perishable commodities over rough stretches.

And every last feature and detail of the Chevrolet truck is ruggedly built, of finest-quality materials, to withstand month after month of gruelling service . . . the time-proved 4-speed transmission, for example . . . the five extra-strong chassis cross-members . . . and the big, sturdy spiral-bevel-gear rear axle.

Yet big, speedy and powerful as this Chevrolet is—economy is one of its outstanding attractions. It costs no more for gas—for oil—for tires—for service than any other truck of similar capacity on the road. And you may buy it on the famous G. M. A. C. plan, with its small down payment and easy terms.

If you want a time-saving, money-saving truck of *proved* performance-ability—call on your nearest Chevrolet dealer. He has just the right type of truck—to do your work the way you want it done. See him now!

1½ TON UTILITY CHASSIS

$520

Light Delivery Chassis	$365
1½ Ton Chassis with Cab	$625
Roadster Delivery (Pick-up box extra)	$440
Sedan Delivery	$595

All prices f. o. b. factory, Flint, Michigan

CHEVROLET MOTOR COMPANY
DETROIT, MICHIGAN
Division of General Motors Corporation

CHEVROLET TRUCK

American Fruit Grower
MAGAZINE

with which is consolidated

AMERICAN PRODUCE GROWER

VOLUME 50 NUMBER 6

Hawley-Smoot Tariff Act a Burden to Agriculture

THAT THE HAWLEY-SMOOT Tariff Bill, originally designed to boost low farm prices, has been turned into a new farm mortgage was disclosed in a study which has just been completed by David J. Lewis, a former member of the United States Tariff Commission, now head of the researches made by the Rawleigh Tariff Bureau. Using the 1922 tariff act, still in effect, as a "measuring stick," on nine products in constant use on the farm, the tariff bill has placed an added load on the farmer of almost $186,000,000 annually.

This is an average additional burden of $30 on every farm.

To give the producers of these nine products an added $369,000,000, the farmers and other consumers will have the purchase price of these articles increased $750,000,000.

Moreover, the articles upon which these increases come are in daily farm use—sugar, wool, lumber, shoes, cement, brick, furniture, hoes, rakes, forks, and many others.

"In these nine items we find that if fully effective," declares Mr. Lewis in his survey, "benefits of $300,117,531 are conferred upon the producers, which entail a burden of $962,587,292 on consumers under the Act of 1922. Under the rates provided in the Hawley-Smoot bill, the benefits conferred are increased to $689,177,452, while the burden rises to $1,722,931,023. Meanwhile the farmers' portion of the burden imposed, $214,656,963, under the Act of 1922, is advanced to $400,636,006 by the Hawley-Smoot rates on these nine items alone.

"However, these burdens and benefits relate to but a fraction of our commodity values in industry and commerce. Actually, the nine items comprise but five per cent in value of our domestic production, including manufactures, fisheries, minerals, farm products, animals and forest products which were found to be $85,792,081,059 in 1927. They comprise but .10.22 per cent of the wholesale values included in the Commodity Index of Wholesale Prices regularly compiled and published by the Department of Labor.

"The Hawley-Smoot Tariff embraces virtually all manufactured products. Everything indicates that the same proportion of burdens and benefits characterize the remainder of the thousands of tariffs on the many thousands of other industrial products.

"It is certain that, as the benefits appear, so also will the burdens; and that the burdens will bear the stated ratios to the tariff benefit, so far as the benefits are realized. This is true because the benefit is a constituent of the producers' price which must augment itself by the wholesale and retail margins which self-sustaining merchandising demands. The merchants will, must, pass it on."

"The increase of the sugar burdens of consumers under the Hawley-Smoot Tariff Bill is found to be $42,880,886," continues the report. "A bounty of $5,372,888 to producers of sugar in the United States would have given them the same amount of protection as the Hawley-Smoot increase of rate. Now this bounty would have saved the consumers all of this great burden of more than 40 millions at a cost to them of but $5,372,888 in taxation—a ratio of about eight to one.

"The investigation conducted by the Institute of Economics into 'The Tariff on Wool' probably has been the most thorough made since the report of the Old Tariff Board in 1911. A chapter is devoted, in its report, to the Cost of the Wool Duty. The Institute traced the compensatory duty of 45 cents a pound through the various industrial and commercial processes to the consumer. As a result it found: 'This makes the total cost of a pound of cloth to the consumer approximately 90 cents (89.66 cents) higher than it would be without a duty on wool.'

"The increase on pyramiding of the compensatory duty is thus shown to be from 45 cents to 89.66 cents, virtually 100 per cent.

"To have his benefits exceed the burden, the farmer must sell or shear six sheep per year. As a practical matter, farm sheep raising is not economical and is not practiced in flocks of less than 15 sheep while the full utilization of the ram calls for 40 to 50.

"In the Agricultural Census of 1925 there were reported:

Farms	6,371,640
Sheep	35,590,159
Farms engaged in sheep raising	430,738, or one farm in 15.

"And so it is evident that in the case of wool we have presented an 'Agricultural tariff' that can only benefit one farmer in 15, while burdening, and wrongfully, 14 other farmers."

The report discloses that the prices of shoes and lumber are already too high, nor is there need for an increase in the price of cement.

Probably one of the most striking discriminations in the measure against the farmer is found in the sodium chlorate tariff rate. Sodium chlorate is used principally for the purpose of killing noxious weeds. It is regarded as the best and most economical way of killing weeds.

"There is only one producer of sodium chlorate in this country, and it is said to be controlled by British capital," continues the report. "In 1929 this company produced 4,792,000 pounds of sodium chlorate; imports were over 17,790,000 pounds. The average cost price of sodium chlorate is 7 cents per pound. It requires from 200 to 500 pounds to kill the weeds on an acre of land. The House continued the present tariff tax on sodium chlorate of 1½ cents per pound; the Senate placed it on the free list; the conference restored the 1½ cent rate.

"The Canada sodium chlorate is free and no sodium chlorate is manufactured in that country. The American plant, British owned, is located at Niagara Falls, on the Canadian border.

"In 1929 importers offered and sold to Canadian farmers sodium chlorate at 5¾ to 6 cents a pound, while in America, where there is domestic production, the price to American farmers was from 7½ to 7¾ cents a pound, equaling the Canadian price of 5¾ to 6 cents plus the tariff of 1½ cents a pound.

"In order to protect this one producing plant in the United States, though foreign owned, the American farmers are taxed on a farm necessity $300,000."

Who must pay this increased tariff burden? The merchants cannot absorb it. They will find added to expenses, the loss from sales. So the burden will be passed on to the farmer and consumer and the tariff bill which was promised to help the farmer, will become a toll, always to be paid, like the interest on a farm mortgage.

Instead of a mortgage lifter the new Hawley-Smoot tariff bill plasters another expense on farm life.

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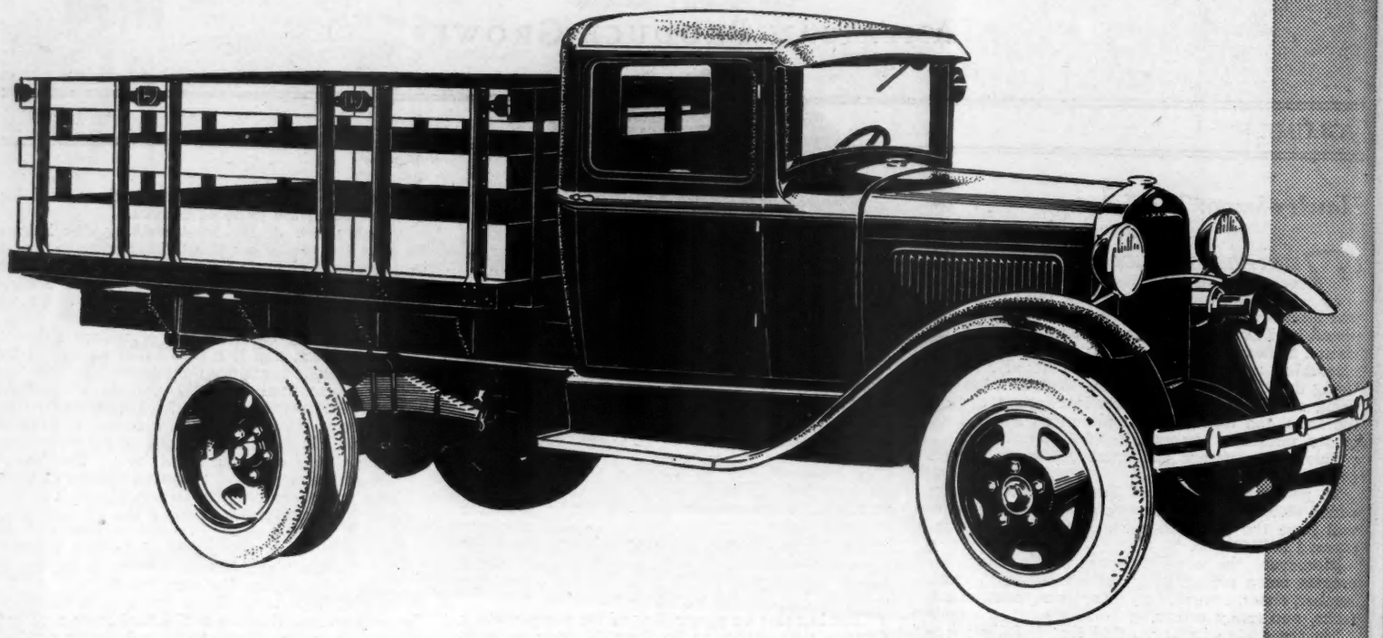


For economical service

under a wide variety of conditions

ONE of the outstanding features of the Ford 1½-ton truck is its capable performance. With an engine that develops 40 horse-power at 2200 r.p.m., and a 4-speed transmission which provides a great range of speed and power, it has the ability to carry heavy loads under difficult road conditions, and ample speed to shorten the distance between two points, with no sacrifice of operating economy.

The Ford truck will finish the work it is given to do, for it is strong and reliable throughout. A new spiral bevel gear rear axle, heavier front axle and spring, sturdy frame, steel-disc wheels, and the extensive use of special steels and fine steel forgings all contribute to its strength and long life.

Safety is increased by the new front brakes, which have been enlarged to the same size as those on the rear wheels. Brakes are of the mechanical type, internal-expanding, and all are fully enclosed. Windshields are of Triplex shatter-proof glass.

Bodies of the Ford truck have been improved in appearance and comfort. They are strong, with ample loading-space of carefully planned dimensions. The standard stake body and the platform body, equipped with grain-sides or cattle-racks, are widely used for agricultural purposes. Either the enclosed cab illustrated, or an open cab, can be supplied. Both are roomy and comfortable.

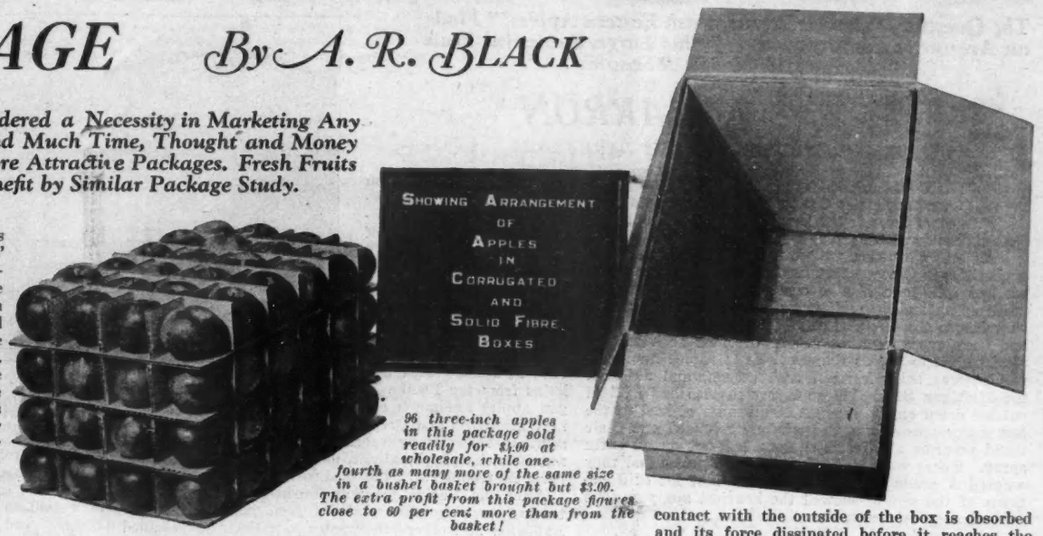
Let your Ford dealer show you how well this truck is adapted for hard work and long service, and at what low cost it can be placed and kept in operation.

Ford

On the TRAIL of the MORE PROFITABLE PACKAGE

By A. R. BLACK

An Attractive Package Is Considered a Necessity in Marketing Any Manufactured Food Product, and Much Time, Thought and Money Are Spent in Development of More Attractive Packages. Fresh Fruits and Vegetables Would Benefit by Similar Package Study.



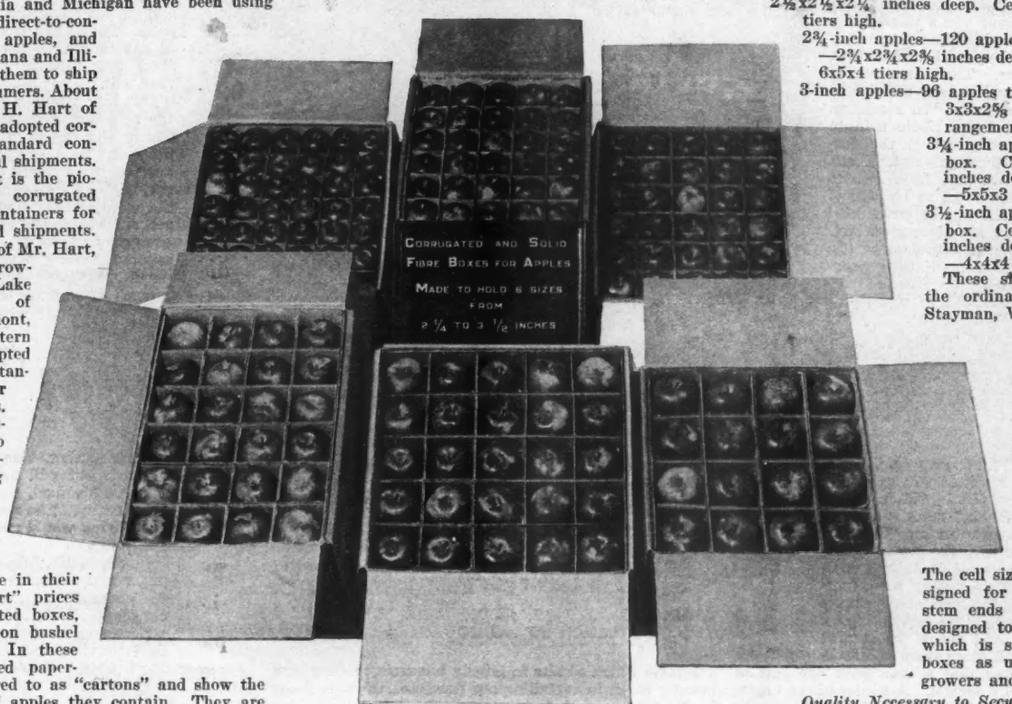
96 three-inch apples in this package sold readily for $4.00 at wholesale, while one-fourth as many more of the same size in a bushel basket brought but $3.00. The extra profit from this package figures close to 60 per cent more than from the basket!

THE PROBLEM of getting fruits and vegetables into the consumers' homes in as nearly the same condition as when picked is being given more careful consideration than at any time in the past. There are several very good reasons for this. In the first place, the consumer has become more discriminating. He, or possibly we should say she, because it is the women folk who do most of the marketing, will no longer accept fruits or vegetables that have been bruised or otherwise mistreated because of poor packing. The grower who has taken the time to learn what happens to his fruits or vegetables on arrival at market, has found that a good container, well packed, possesses a sales appeal that insures quicker movement of his produce at higher prices. The indifferent packer who considers his job done when the fruit is grown, is being crowded into better methods by competition with well-graded and well-packed fruits and vegetables.

The Rise of a New Standard Container

IN the April, 1929, issue of AMERICAN FRUIT GROWER MAGAZINE an article appeared illustrating the use of corrugated paperboard boxes at the Marshall Farms, Fitchburg, Mass. At these farms, corrugated boxes have been used for 14 years and, so far as we know, the Marshalls are pioneers in the use of that style of container for apples. From year to year more New England orchardists are using them, mostly for direct-to-consumer trade. Some growers in the States of New York, Virginia and Michigan have been using corrugated boxes for direct-to-consumer shipments of apples, and peach growers in Indiana and Illinois have been using them to ship peaches direct to consumers. About seven years ago W. H. Hart of Poughkeepsie, N. Y., adopted corrugated boxes as standard containers for commercial shipments. We believe Mr. Hart is the pioneer in the use of corrugated boxes as standard containers for apples for commercial shipments.

Following the lead of Mr. Hart, other Hudson River growers, growers in the Lake Champlain districts of New York and Vermont, in central and western New York, have adopted corrugated boxes as standard containers for commercial shipments. This practice has become so general and so many of these containers have been reaching the New York City market, that the New York City office of the State Department of Agriculture include in their "Daily Market Report" prices on apples in corrugated boxes, together with prices on bushel baskets and barrels. In these reports the corrugated paperboard boxes are referred to as "cartons" and show the "count" or number of apples they contain. They are not sold as containing a bushel or any other measure of apples, but as containing a certain number of apples, depending on the size, and by the net weight. The same is true of the standard wooden apple box used by western growers.



More Money for Fewer Apples

IT will be our purpose in succeeding articles to tell why growers are using corrugated paper packages, how they benefit by their use, and the attitude of the wholesale and retail trade toward this "better fruit package." The prices received for apples packed in paperboard boxes as compared with other containers will be set forth, together with such other information as may be deemed enlightening.

Referring to the "Farmers' Daily Market Report," it will be observed that the prices received for McIntosh apples packed in bushel baskets ranged from $2.50 to $3 per bushel for two and one-half inch, U. S. No. 1 grade. The same apples, including Fancy grade, packed in corrugated boxes, in sizes of two and one-half inch (160 count) and three-inch (96 count) ranged in price from $2.75 to $4 per box, while some of them sold at $2.25 to $4 per box in sizes of two and one-half inch (160 count) and two and three-fourths inch (112 count).

In making these price comparisons, it must be borne in mind that the paperboard boxes hold only 80 per cent as many apples as the bushel basket. If the selling price of a corrugated box of apples and a bushel basket are the same, there is an added profit to the user of corrugated boxes which is quite frequently greater than the normal profit on the apples. This is one of the reasons why growers and shippers are swinging over to the use of corrugated boxes. This detail will be more thoroughly covered in a later article.

Apples packed in paperboard boxes are not subjected to pressure in closing the containers. Bruising and decay developed therefrom are, therefore, eliminated. Box cuts, lid cuts and nail punctures are impossible. In the accompanying picture, showing the apples and interior box packing outside the corrugated box, it will be observed that each apple is entirely surrounded by corrugated paperboard. The corrugated board is sufficiently pliable to allow for a variation of one-fourth inch in the size of the apples packed in the box. The construction of the paperboard is such that a shock coming in contact with the outside of the box is obsorbed and its force dissipated before it reaches the contents. It is that quality in corrugated boxes which prevents bruising of apples packed in them.

Six Standard Sizes of Boxes

BOX makers have designed sizes of corrugated boxes for the six standard sizes of apples, beginning with two and one-fourth inch and ending with three and one-half inch, in variations of one-fourth inch. The accompanying illustration shows these six sizes, and we believe you will agree that they furnish a beautiful display for the fruit. The dimensions for these six sizes are as follows:

2¼-inch apples—210 apples to the box. Cell size—2¼x2¼x2 inches deep. Cell arrangement—7x6x5 tiers high.

2½-inch apples—150 apples to the box. Cell size—2½x2½x2¼ inches deep. Cell arrangement—6x5x5 tiers high.

2¾-inch apples—120 apples to the box. Cell size—2¾x2¾x2⅜ inches deep. Cell arrangement—6x5x4 tiers high.

3-inch apples—96 apples to the box. Cell size—3x3x2⅝ inches deep. Cell arrangement—6x4x4 tiers high.

3¼-inch apples—72 apples to the box. Cell size—3¼x3¼x2¾ inches deep. Cell arrangement—5x5x3 tiers high.

3½-inch apples—64 apples to the box. Cell size—3½x3½x3 inches deep. Cell arrangement—4x4x4 tiers high.

These sizes will accommodate the ordinary varieties such as Stayman, Winesap, Spy, Jonathan and apples of similar shapes. For apples having their greatest dimension from stem to blossom end, such as Delicious and similarly shaped apples, these cell sizes would not answer. For flat shapes, such as Summer Rambo and like shapes, the above cell sizes would be too deep. The cell sizes given above are designed for packing apples with stem ends up. These boxes are designed to hold 40 pounds net, which is standard with wooden boxes as used by Pacific Coast growers and packers.

Quality Necessary to Secure High Price

BUT too much emphasis cannot be placed on the statement that quality is necessary in the contents of the package in order to secure a favorable price. The package alone cannot secure a price that the contents do not merit. Where higher prices have been received for apples packed in corrugated boxes it has been because the boxes bore the label of a grower, the high quality of whose pack was known to the trade. The corrugated box, therefore, is most practical for the use of the growers with established reputations for packing to uniform grades. Where such growers adopt the corrugated box for their best grades, advising their wholesalers to that effect, the step cannot fail to be profitable. Until a reputation for uniformity of pack has been secured, however, the grower had best cling to some type of package more easily "sampled."

This FRUIT Went to the LAUNDRY

The Question, "Does It Pay to Wash Eastern Apples?" Finds an Answer in the Experience of This Large, Successful Fruit Exchange in the 1929 Season.

By J. A. BARRON
MANAGER, FENNVILLE FRUIT EXCHANGE

A partial view of the buildings owned and operated by the Fennville Fruit Exchange. The building in the foreground was torn down to permit the construction of the new packing house, mentioned in this article.

"THEY CERTAINLY look better," remarked our foreman as the initial batch of Jonathans came through the washer and we had our first look at laundered Michigan apples.

Late last November we were notified by the federal authorities in Chicago that several cars of apples which we had sold to a Racine customer were showing too much spray residue and that cleaning would be necessary before these apples could be offered for sale. We had been expecting that sooner or later such trouble would come to us, as the domestic tolerance for spray residue was being lowered each season, and although the Michigan State College Spray Service had advised cutting down on the amount of arsenate of lead in the last cover spray, our growers had followed out their usual program and in some cases had put on an extra spray. There were indications of good prices and they wanted A grade fruit. In fact, the best lot of Jonathans of the season showed the heaviest spray residue analysis.

Doing the Job Right

INQUIRY revealed that there were other lots of Michigan apples in trouble in Chicago and that improvised methods of cleaning, such as washing with an acid solution in a bath tub, wiping with dry cloths, and even wiping with canvas gloves were reported. It was said that one lot of apples had to be wiped three times before meeting federal approval. We thought of dipping the apples, first in an acid solution and then in rinse water, but the problem of drying was a hard one, and it was finally decided to buy a regular washer and do the job right. A small capacity machine was located at Rochester, where it had been exhibited at the New York State Horticultural Society show. This we ordered shipped to Racine and upon being notified of arrival, we headed for Wisconsin with repacking equipment and a small crew.

Walter Tonges of the Michigan State College had been sent to help with and observe the washing operations. There was also a federal inspector on hand to take samples of washed apples for analysis. We used two gallons of commercial hydrochloric acid to 100 gallons, and ran water through the rinsing tank at the rate of three gallons a minute. It was necessary to add acid from time to time and to make tests so as to be sure of the right strength. The apples were dried by passing through an air blast that blew the water off. While not absolutely dry when coming from the machine, we used paper wraps in repacking with no trouble from dampness. Tonges took charge of keeping the proper acid solution in the machine, took records of water temperature, and made himself generally useful. We started washing on Tuesday and on Thursday had reports from federal authorities that our work was O. K.

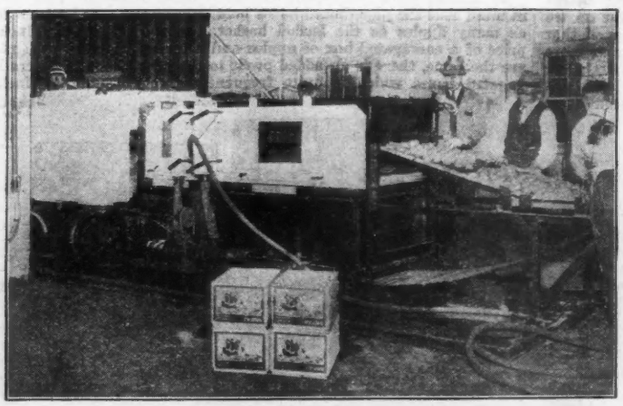
Comparing our experience at Racine with bulletins from the Pacific Northwest indicates that Michigan apples are much easier washed than those grown in Washington and Oregon. Washing with proper acid solution, followed by thorough rinsing, evidently does not affect keeping qualities, as our Racine customer reports no trouble with the washed fruit.

After the Racine job was finished, the washer was trucked to Fennville, where a good many bushels of Baldwins and other late winter varieties were cleaned and repacked. So much for the 1929 crop.

Larger Quarters Required

WHAT to do in 1930 and succeeding seasons was a problem. Our packing house, situated immediately behind our storage buildings, had been taxed to capacity every year that the winter apple crop was above average, and we figured that it would take at least three large capacity washers to do the work. Our foreman said that he could not find room for these machines. Independent growers were becoming nervous over the prospects of having to wash their apples, and we had a lot of inquiry as to joining our exchange. After much discussion, it was decided to tear down the old packing house and build a larger and better one. This involved an estimated expense of $20,000 for building and new equipment, and it was finally decided to issue preferred stock for $10,000 and to finance the balance with notes.

"We hope the expense of washing, including depreciation, will not exceed two cents a packed bushel, and the improved appearance of the fruit should make it easy to offset this with better sales."



Our business was started in 1915 as an ordinary corporation with $6000, which was soon increased to $10,000 and again to $25,000. In 1921 we put through a scheme of apportioning the stock in accordance with volume of business from each grower-member. This has worked very well, and gives the larger growers voting power commensurate with their investment and tonnage. They are a loyal bunch and quickly subscribed to our preferred stock issue. They have also offered to take some of our short-time notes. All this seems to show that farmers can help themselves if they will.

Our new packing house will be of hollow tile and steel construction, 125 by 130 feet. The grader spaces will be 25 feet wide and the full length of the building. The upper floor will be used as an empty package storage, with convenient arrangements for getting the empty baskets to the packers. Empty orchard crates will be carried on overhead conveyors to the crate room, which is in a separate building. We expect that this new plant will have a maximum capacity of around 20 carloads of packed (*To Page 17*)

Advertise the APPLE? How? and Why?

A Discussion of Some of the Fallacies and Misunderstandings Upon Which the "Apples for Health" Movement Has Attempted to Build an Advertising Campaign to Stimulate Increased Apple Consumption.

By WELLS A. SHERMAN
SPECIALIST IN CHARGE, FRUIT AND VEGETABLE DIVISION U. S. BUREAU OF AGRICULTURAL ECONOMICS

THE EDITORIAL in your April issue, "Does the Apple Need Advertising?" quotes from my book, "Merchandising Fruits and Vegetables," several selected paragraphs from the chapter on "Creating Demand" which deals with the general problem of expanding the use of fruits and vegetables. Discussion in your May issue indicates that some wrong inferences were drawn from these quotations. The subject is of immense importance and should be studied dispassionately. In all discussions of advertising, let us remember that a man with one suit of clothes already wants a second. A man with two suits probably wants a third. A man with three suits can be persuaded to want a fourth and so on indefinitely. Likewise, a man with a family car can be made to want a second car for his own business, and the family may be persuaded to want a separate car for each member. So it is with furnishings and other property which we use at our pleasure and which does not lose its value immediately if it is not used constantly.

Effect of Advertising on Fruit Consumption

ON the other hand, no one who has just finished a good dinner wants to begin another, and it is an exceptional individual who, having eaten three square meals, desires a fourth in the same 24 hours.

Therefore the successful advertising of almost any food product means that some other food product is being displaced. Any advertising of a raw fruit or fresh vegetable which results in largely increasing its use will usually result in curtailing our purchases of other foods in the same general class.

We have seen a tremendous increase in the use of fruits and vegetables in recent years with only moderate measurable decreases in our per capita consumption of wheat products and a few other staples. This means that it takes a considerable volume of fresh fruits and vegetables to displace a few pounds of cereals in the diet.

We may ask the broad question: How much will the American fruit and truck growers be benefited in the end if, by the expenditure of several million dollars of the growers' money, they can shift the food habits of the people to such an extent that they take more apples in proportion to their consumption of citrus fruits and more lettuce at the expense of celery and other so-called salad crops. The growers will have paid the bill which must come out of the price of the product advertised. Other growers will have suffered a partial loss of their market. The consumer will be eating no more but will have changed the proportions of his food, perhaps only slightly and temporarily. The net gains, if any, from the advertising would seem to be rather hard to determine.

Enthusiastic claims for the results of newspaper and magazine advertising addressed to the consumer are usually allowed to go unchallenged. We are apt to assume that an advertising campaign which has cost hundreds of thousands or perhaps millions must have been worth while. However, there seem to be two sides to this question.

The Raisin Situation

IN the May issue, John Napier Dyer refers to the world-wide advertising campaign of the Sun-Maid Raisin Association of California and states that as a result the troubles of the raisin growers were at an end. This is evidently the judgment of one who has seen the situation only from a distance.

During the summer of 1927 I was stationed in California. The banks in that State were generally avoiding taking title to any more forfeited vineyard properties. They preferred to carry their loans and let interest accrue unpaid so long as the owner could be persuaded to remain in possession and take care of the property. Two of the principal banks in the State already numbered their vineyards by many hundreds. The year 1928 saw no improvement in this situation. (*To Page 10*)

PATHFINDER

THE QUALITY TIRE *within the reach of all*

"*Buy it,*" says your own good judgment . . . "*Buy it again,*" says your speedometer

YOUR first look at a Pathfinder tells you it's a tire to command respect on any car.

You see strength and toughness and traction written all over its husky tread — you see comfort and cushion in the generous fatness of its sidewalls.

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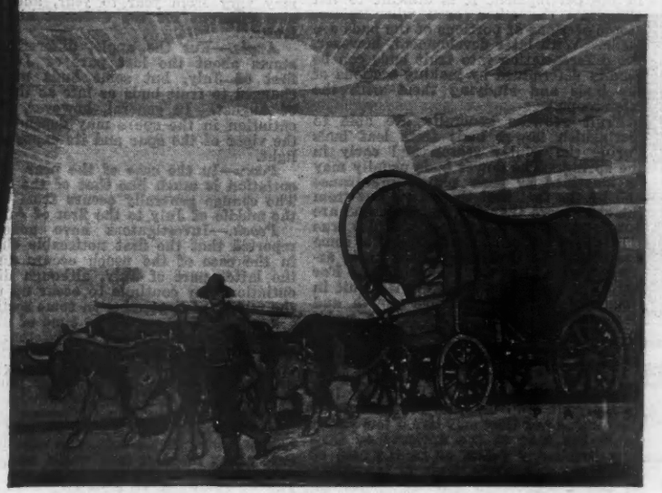

THE GREATEST NAME IN RUBBER

GOODYEAR

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QUESTIONS and COMMENT

Conducted by T. J. TALBERT

Questions on fruit growing problems and on general horticulture will be answered through this department if of general interest. For reply by mail enclose 2c stamped envelope (air mail 5c). Address AMERICAN FRUIT GROWER MAGAZINE, 53 West Jackson Blvd., Chicago.

Making Fruit Buds

BUDS ARE OFTEN named and classified according to function, as, for example, leaf buds, flower buds, and mixed buds. A leaf bud is generally understood to consist of a very short axis having internodes packed closely together. The leaf bud may also be covered with protective scales or it may be said to be naked; that is, without scales or protection. A leaf bud in reality elongates into a stem, while the leaves develop into the foliage.

A flower bud develops into flowers which may under favorable conditions set fruit. In the various fruits the number of flowers differ. In the case of the cherry the number is from three to five, and in the plum two or three are common. In the case of the apple and pear, mixed buds are found, which contain both flowers and leaves.

Buds may be active, dormant, or adventitious. Those buds which grow under normal conditions are said to be active. Buds that do not grow to any extent but possess the power of growth should unfavorable conditions arise are called dormant buds. It is common knowledge that the buds near the tip of shoots are generally more active than the buds toward the base. Adventitious buds are not visible but may arise and become active under unusual conditions, such as injury to the stem or branch.

Buds are often classified, or named, in reference to the position which they occupy on the stem; for example, on the tip of the stem the bud is known as terminal, while on the side of the stem it is known as a lateral bud. Lateral buds originate in the axils of leaves or the angle that the leaf makes where it joins the stem.

Fruit Buds

LEAF buds and flower buds are formed in the beginning from the same kind of tissues; in fact, very early in the development it is difficult to tell one from the other, even when microscopic sections of portions of the buds are made. With later development, however, the differentiation into fruit buds can be readily determined by making sections of the buds and studying them with the microscope.

Fruit growers generally are able to distinguish flower buds from leaf buds during the winter season and early in the spring. The flower buds usually may be identified by their plump appearance and by the fact that they stand out from the stem more than the leaf buds and are not so sharp or pointed. It is also true that the two kinds of buds with some fruits may be distinguished by their arrangement or position on the stem. For example, the peach tree bears its fruit in wood of the previous season's growth, and the buds generally occur at the nodes in groups of three, the middle one being the leaf bud and the outer two fruit buds.

Fruit buds are often borne on spurs. Spurs are distinguished as very short, rough, condensed branches. They may live to bear one crop only, as in the case of the almond; or they may live a few years, as in the case of the apricot; or they may live many years, as in the case of the apple and pear. This is important to know, because in pruning operations with fruit trees that bear their crop on spurs, as with apples and pears, it is highly desirable that the spurs be preserved.

Fruiting Habits of Several Kinds of Trees

Kind of Tree	How Fruit Buds Are Borne
Apple	On spurs, except with young trees and with special varieties where the terminal buds may also frequently bear fruit.
Pear	Same as the apple.
Peach	On lateral branches of the previous season's growth.
Cherry	On spurs one or more years of age.
European plum	Mostly on spurs.
Japanese plum	On spurs and laterals.
American plums	On spurs and laterals.
Apricot	On spurs and laterals.

It is important to note that the apple does not bear fruit annually on the same spurs; for example, if it bore fruit on spurs in 1929, it is not likely to bear fruit on the same spurs in 1930. In other words, if it bears a fruit on the terminal bud of the spur in 1929, it forms a leafbud on the side during the same year which continues the growth of the spur in 1930. In 1930 a fruit bud is formed on the end of the spur, which should bear a fruit in 1931.

As a rule, some of the spurs bear fruit one year and others the next, so that a crop is obtained every year. In some orchards, however, all the spurs bear fruit the same year, in which case a crop is obtained every other year. Some varieties of apple are more likely to develop the habit of alternate bearing than others. Unusual conditions are often responsible for such alternate bearing, and it is difficult to get the trees out of the habit when once it is established. A period of from three to five years is generally required to materially change the bearing habits of trees.

The best that is known in reference to the matter of causing trees to bear regularly may be summarized by saying: Adopt the best orchard practice or culture for your particular locality. Such culture has often caused trees definitely set to the alternate habit of bearing to become annual, or regular bearers.

Fruit Bud Differentiation

FRUIT buds are formed the year previous to their opening and development into fruit. During the early summer after the buds are formed, the distinguishing difference or differentiation occurs inside the bud. This determines whether the bud will remain a leaf bud or become a fruit bud. The exact time of change for the different kinds of fruits may vary from year to year, and it is also different for the different kinds of fruits.

Apple.—For the apple, differentiation starts about the last part of June or first of July, but some buds may be changed to fruit buds as late as the first of August. In general, however, differentiation in the spurs may depend upon the vigor of the spur and its exposure to light.

Pear.—In the case of the pear, differentiation is much like that of the apple. The change generally occurs from about the middle of July to the first of August.

Peach.—Investigators have generally reported that the first noticeable change in the case of the peach occurs during the latter part of July, although differentiation may continue to occur up until the middle of September in some sections.

Plum and Cherry.—The time of differentiation may vary with the different species of plums and cherries. American plums usually differentiate during the first half of July, the Japanese plum a week or so later, while some varieties of cherries may not make the change from leaf to fruit buds until some time in September, although the initiation usually occurs about three or four weeks earlier.

Importance of Fruit Bud Differentiation

FROM the standpoint of the fruit grower, he should understand that the differentiation of buds from leaf to fruit occurs quite early in the season. If he is to do anything about the matter of changing a desirable number of leaf buds to fruit buds in order to secure a profitable crop of fruit for the next year, it is all important that the cultural practices designed to assist the trees in making the changes be put into practice early in the season of the year previous to the harvesting of the crop.

Cultural treatments may reasonably consist of fertilization, pruning, and cultivation. With all such practices it is, of course, the grower's business to adapt these to fit his particular needs or conditions. It is also of interest and value to the grower to know that the buds which will produce the crop for next year are formed the year previous, and this knowledge should lead him to understand that the tree must be given continuous proper culture in order to secure regular and profitable crops.

It should be known that fruit trees differ in their nutrition and growth from animals used for food. The hog, for example, may be housed and fed properly for a few weeks, in which case it may take on flesh and become well fitted for market. Not so in the case of an apple tree. A few weeks of good care one year may be of no value as regards to securing a larger crop for that season. To make plenty of fruit buds, the fruit grower must work a year in advance, and it will usually be to his advantage to plan his operations and practices for two or three years in advance.

Factors Influencing Fruit Bud Formation

THE relative proportions of carbohydrates (sugars and starches) and nitrogen may be very important in influencing growth and fruitfulness. Many investigators have shown that there must be a certain relation of these two foods, carbohydrates and nitrogen, within the plant before good growth and at the same time the development of profitable fruit crops can be obtained.

As regards to the nutrition and development of fruit plants and their fruitfulness, they have been divided into four general groups, or classes. This is done solely for the purpose of study, and it must be understood that there may not be any sharp lines of distinction between the various classes, or groups. Moreover, there may be great variation in the classes from year to year, depending upon the weather, presence or absence of insects, and cultural practices given. The four classes follow:

Class One.—This represents the plant having an abundance of moisture and nitrogen, but a rather restricted supply of carbohydrates. With such food the growth of the tree or plant is slender and feeble and there will be but little or no production of flowers. This condition rarely occurs in orchards, but it may occur where the trees have been defoliated by an attack of insects or diseases. Moreover, trees pruned heavily in the summer might fall into this group.

Class Two.—Again we have an abundant supply of both moisture and nitrogen and there is sufficient carbohydrates so that the nitrogen supply is utilized, giving a strong vigorous wood and leaf growth. This condition gives very little fruit-bud formation. As a result, the trees bear few fruits and are unprofitable. The explanation is that the carbohydrates are largely used for growth, leaving no surplus for fruit bud formation. This condition in apple trees may be found in young orchards, on rich soil, and in orchards where heavy pruning has been practiced. This condition rarely occurs in bearing orchards, although it is possible, particularly on very fertile soils or where over-fertilization has occurred for several years.

Class Three.—It is assumed in this class that the moisture supply is ample and that there is an excess of carbohydrates over and above the amount utilized with the nitrogen. This should give a fair to good growth, but also an abundant supply of fruit buds. In fact, this is the condition sought, giving a healthy, vigorous tree producing abundant fruit buds and a profitable harvest of fruit. In other words, we have in this condition the proper balance between the carbohydrate and nitrogen supply to produce profitable fruit-bud formation and good crops of fruit.

Class Four.—This is the condition most often met with in the orchards of the Central States region. It is assumed here that there is a deficiency of nitrogen and an abundant supply of carbohydrates. As a result, we get an extremely weak growth, yellowed foliage and either few flowers produced or else a production of flowers too weak to set fruit. This latter condition may often occur. Trees in such a nutritive condition are said to be "starved" or "devitalized." Old orchards growing under sod condition in various parts of the country illustrate to the best advantage this nutritive condition, which is generally unprofitable.

The remedy, of course, is an additional supply of nitrogen, which should make for an increased growth and the formation of fruit buds, also a better set of fruit. The increased vigor should aid materially in making the trees more resistant to the attack of diseases and insects, increase their length of life, and cause them to produce not only more profitable crops but more regular crops. The nutritive condition for fruitfulness may be changed by fertilizing with nitrogen, by pruning, or by cultivating.

In all the four classes, or groups, briefly described above, it is important that the fruit grower give particular attention to such common orchard operations or practices as pruning, fertilization, and soil management. This is true because these cultural practices must be considered in relation to their effect on the carbohydrate and nitrogen supply of fruit trees.

Summary

1. When trees fail for any reason to maintain a fair to good amount of leaf area, fruit bud differentiation is interfered with and may not take place in sufficient numbers to give profitable crops.
2. Food materials for the growth of leaves, spurs, and shoots are generally stored in largest quantities near or adjacent to the healthy leaves of the previous season where they were manufactured.
3. Food materials and the resultant growth of trees are localized; that is, foods are not transported in needed quantities from one portion of the tree to another where there may be a greater use for them. This means, of course, that all parts of the tree should receive proper care and nourishment.

Spray Schedule for Quinces

I have a fine quince tree that is always filled with fruit. The quinces are fairly smooth but they are very much alive with worms. Will you please advise me what should be done or what materials I should spray with to get nice fruit.—*W. S., New Jersey.*

WE SUGGEST that your quince tree be sprayed with the same materials at the same dilutions as are used in spraying apples and pears.

This consists, generally, of lime-sulphur one and one-fourth gallons, plus one pound arsenate of lead, to 50 gallons of water.

Make the first application when the leaves are out and shoots are three or four inches long. Follow this with a second application after blooming, and perhaps as many as two additional sprays may be needed, following the second spray, at intervals of about two weeks.

The Dropping of McIntosh

Will you please tell me what to do to stop McIntosh apples from falling off before they are ripe. I spray the trees four and five times every year. The trees are also watered well. We live in an irrigated valley, the Snake River Valley.—*F. B., Washington.*

ONE OF THE chief faults of the McIntosh apple is its failure to remain on the trees after ripening, particularly in certain orchard sections like the Central States, and, from what you say, in certain regions of the Northwest. No one has yet found a remedy for this early dropping following ripening of the McIntosh variety.

The Jonathan apple ranks in this same class, although it does not drop as readily upon ripening as the McIntosh does in the Central States section. To obtain the fruit free from bruises it is necessary to make several pickings and watch the ripening process carefully.

Brown Rot of Plums

Every year at fruiting time or just before the fruit is ripe I lose all my plums. They drop off as fast as they ripen. They are sprayed twice with lime and sulphur but this does not seem to help the trees. Please advise me what to do.—*J. V., Illinois.*

FROM WHAT you say regarding the fruit of your plum trees, it is our opinion that the injury is due to the fungous disease known as brown rot. This disease is controlled primarily by spraying, but thinning the fruit will help materially in control. As soon after the June drop as possible, the plums should be thinned so as to prevent the fruits from touching when ripe. Brown rot will spread from one plum to another if the fruits touch. It is also important to remove from the trees all the mummied or dried fruits which may be still attached to the branches and twigs. Rake up those that may be found on the ground and burn them. These mummied fruits are sources of reinfection.

(To Page 16)

GENERAL MOTORS TRUCKS

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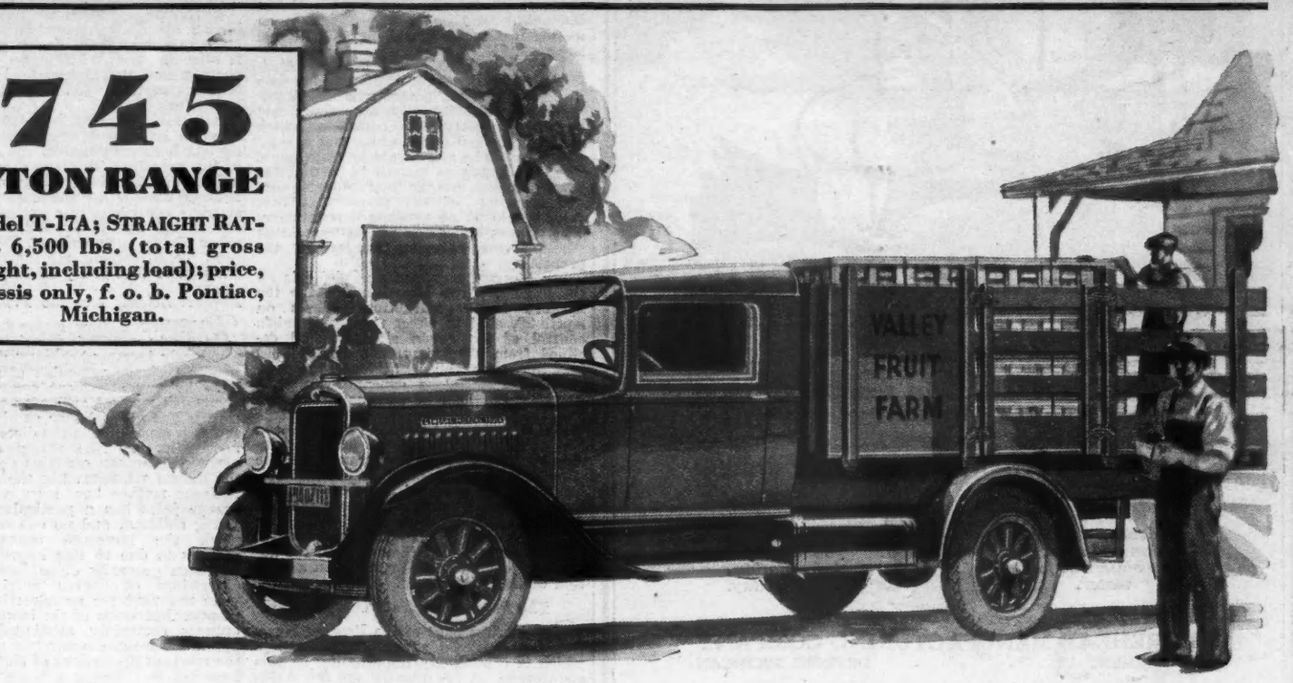
1 TON RANGE

Model T-17A; STRAIGHT RATING 6,500 lbs. (total gross weight, including load); price, chassis only, f. o. b. Pontiac, Michigan.



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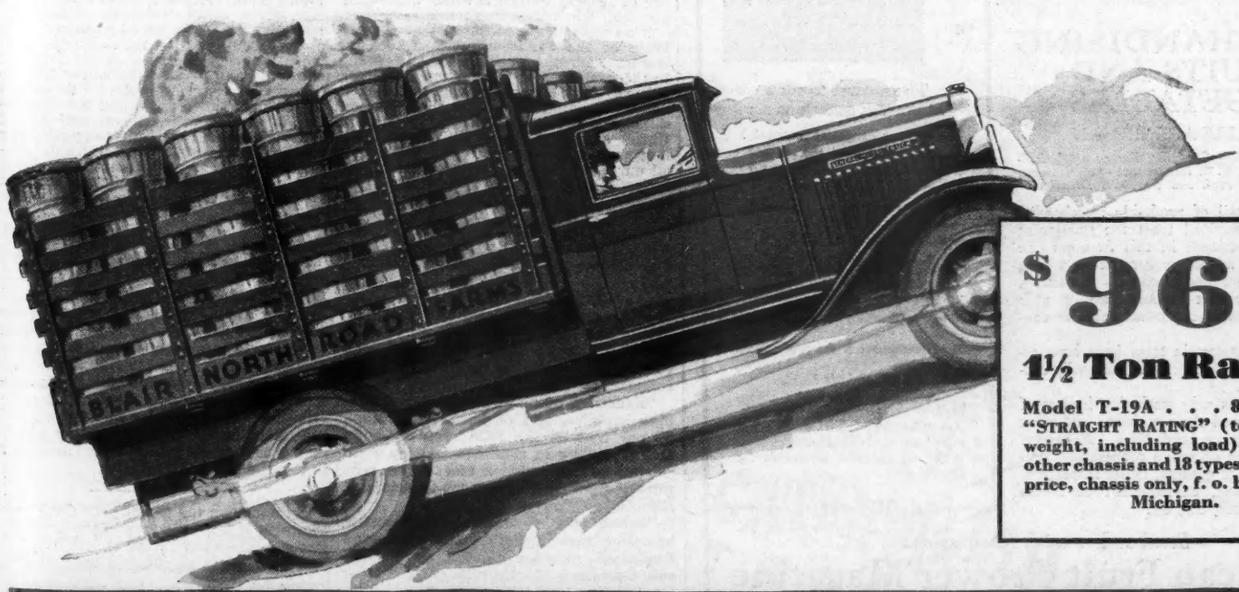

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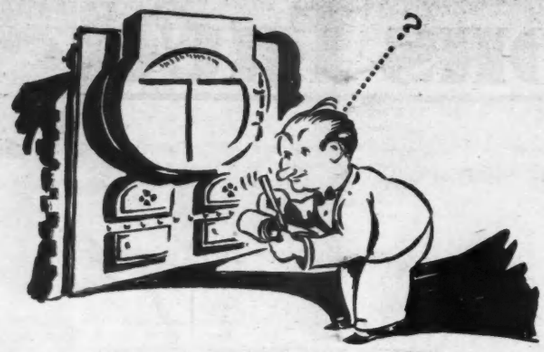

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Principal Marketing Specialist, Bureau of Agricultural Economics, U. S. Department of Agriculture, in charge of Fruit and Vegetable Division

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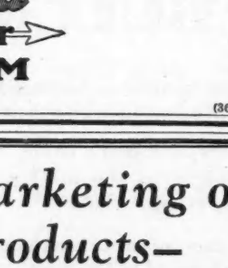

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Advertise the Apple? How? and Why?

(*From Page Six*)

In 1929 vineyards which had been fairly successful producers in the San Joaquin Valley could be bought for the value of the naked land under them, based upon its usefulness for producing alfalfa and livestock.

In March, 1930, I was again in California and was approached by a man who was looking for a tenant who would undertake to handle a 300-acre grape and orchard property in California which would be turned over to him rent free by the owners who also would pay the taxes. The only condition seemed to be that the tenant must undertake the reasonable care and operation of the property so that there would be no needless deterioration. The owners had given up all thought of securing even carrying charges on the property.

Mr. Teague, representing California on the Federal Farm Board, addressing the Eastern States marketing officials on April 29, said in effect that Sun-Maid's control of the raisin situation had declined from a maximum of over 80 per cent to considerably less than 40 per cent, that its tremendous expenditures while carrying the load of surplus production had brought the association to the verge of bankruptcy, and that the Farm Board had come to the rescue to prevent foreclosures which would have transferred the title to properties worth millions of dollars from the growers' association to the bond holders. In view of these facts, I doubt whether Mr. Dyer could find many raisin growers in California who would agree with him that their world-wide advertising campaign had resulted in a solution of their difficulties.

The Proposed Lettuce Campaign

ON the first page of the Produce News for April 26 appears a news note which is exceedingly illuminating in this connection. A few months ago the Western Growers' Protective Association notified all their customers that each car of Iceberg lettuce was to be billed for the f.o.b. price plus $3 for a nation-wide advertising fund. Many members of this association are large growers as well as shippers but the shipping interests predominate although the growers' name is used. Just how much the producers and shippers of the lettuce were contributing to the national advertising fund I do not know, but the news note in question is as follows: "Chicago, April 25. Sixteen of the principal carload dealers in lettuce in this city met on Wednesday afternoon and organized a lettuce handlers' division of the Chicago Produce Dealers' Association. . . . They unanimously passed a resolution effective on May 1, that all members of the group should discontinue paying the advertising charge of $3 car assessed by the Western Growers' Protective Association on each car of Iceberg lettuce shipped.

"This action was taken by the group as the members felt that they were being penalized as f.o.b. buyers. They expect that their action will have a nation-wide effect and will lead to others refusing to pay this charge. The members of the local trade contend that the advertising of Iceberg lettuce is solely a growers' problem. The action was unanimous."

This would seem to foreshadow the collapse of the ambitious scheme recently launched for the nation-wide advertising to the consumer of the virtues of Iceberg lettuce. This campaign was undertaken notwithstanding the fact that carload shipments of lettuce have increased from 13,788 cars in 1920 to 53,168 in 1929. Lettuce now ranks next to potatoes among all our vegetables in the total number of carloads shipped. This tremendous expansion has been accomplished by universal and persistent display which has kept head lettuce constantly before the consumer without any expenditure for printer's ink or magazine advertising space.

Wisely or unwisely, the industry is allowing the observance of apple week to lapse except as local dealer groups keep it alive in spots. Meantime current reports suggest that Apples for Health, Inc., is not receiving the financial support hoped for.

All this seems to indicate that the question HOW to advertise the apple has not yet been answered to the satisfaction of the industry. Perhaps this is because no one has yet given the grower a satisfactory answer to the question, "Why should I contribute to a national fund for advertising apples generally? Is it not wiser for me to contribute, if at all, to a fund for advertising my individual apple business or that of my association?"

Medical Science and the Fruit Industry

RECENT history seems to prove beyond reasonable question that a tremendously increased demand for any particular fruit or vegetable can be stimulated by any statement emanating from *accredited* medical authority to the effect that it has a special or specific value in the diet, especially in the diets of invalids and children. The varied diet of an average American contains enough of all the known vitamins, but the average intelligent mother has been taught that orange juice has a particular value for young children, and no one can tell how much the increased consumption of oranges is due to this knowledge which has been generally disseminated through discussions of human nutrition which were not paid for as advertisements. I suspect that much of the increased use of oranges commonly attributed to newspaper and magazine advertising is in fact the result of discussions of diatetics which have not cost anyone a penny.

If you doubt this conclusion observe what has happened in the case of spinach. Only a few years ago our authorities announced that spinach was apparently our most valuable single vegetable product as a source of certain vitamins and of indispensable mineral salts. Our carload shipments of spinach have increased from 3089 in 1920 to 10,352 in 1929. Everyone will admit that this is a phenomenal increase, yet during this whole period who has seen a single paid advertisement of spinach in any newspaper or magazine? This 300 per cent increase seems to have been almost solely the result of the expressed opinions of those who study human nutrition, carried as news.

It is easy to increase the use of orange juice because almost everyone likes it and the mother finds no opposition on the part of the children. On the other hand, no one wants to eat spinach regularly and frequently. Probably twice a week will satisfy all of us, yet how many thousands of mothers are placing spinach almost constantly before their children and insisting, often in spite of tearful protests, that some of it must be eaten.

Reasoning by analogy, we may conclude that if chemical or medical science should discover some new outstanding and heretofore unadvertised virtue or value in a ripe apple, the question as to HOW to advertise the apple would be solved. The answer would be: Let the newspapers and magazines publish their usual series of editorials and articles discussing the discovery; let the growers devote themselves to producing good fruit, and the distributors to displaying it. These articles and editorials would explain to the public why we should eat more apples. Such disinterested statements would carry conviction and insure consumer confidence such as no paid advertising can inspire.

Motor Truck Shipments in Indiana and Illinois

A REPORT of motor truck transportation of fruits and vegetables in southern Indiana and southern Illinois, by Brice Edwards of the Bureau of Agricultural Economics, contains the following summary:

"Exclusive of market garden and canning supplies, and of local distribution, 38 per cent of the 1928 crop of fruits and vegetables in southern Indiana were shipped by motor truck and 23 per cent were shipped by motor truck in southern Illinois.

"Percentages of certain crops moving by motor truck in southern Indiana were: Apples 45, peaches 40, cantaloupes 36, sweet potatoes 15. Corresponding figures for Illinois were: Apples 18, peaches 29, cantaloupes 75, and sweet potatoes five.

"It is probable that rail displacement by motor truck in hauling fruits and vegetables in southern Illinois in 1928 was not over 10 per cent, because a large part of the truck movement was of low-quality products not suitable for rail shipment.

"A characteristic of motor truck shipments in this territory is the major distribution to small cities in the corn and coal belts, and in rural trade. Less than 50 per cent of the motor truck movements is to primary city markets."

By removing the top of your Christmas cigarette lighter you can make a dandy match box.—*Rock Island Argus.*

What would have happened if hoop skirts and rumble seats had occurred in the same generation?—*Nashville Banner.*

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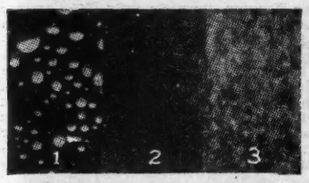

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Photo shows how 50% of the arsenate is locked up in spray spots, and no protection between spots. The spots contain enough arsenate for control if efficiently distributed. This type gives only 50% control, according to entomologists.

No. 2

Photo shows the thin film of arsenate produced by calcium caseinate, too thin a coating for protection. It holds only 25% of the amount of arsenate, as compared with the spray spots, and controls no better according to entomologists who introduced it.

No. 3

Photo shows the Fluxit fixator coverage holding the same amount of arsenate per unit area as is imprisoned in the spray spots, but the arsenate released for a protective coating that gives increased control of the codling moth and should better control the oriental fruit moth, curculio, apple maggot whose habits are like the codling moth, getting their lethal dose only by accident. Few of such accidents occur between spots. Use three pounds arsenate to one hundred gallons.
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A slight touch removes it. Therefore, if residue is near tolerance, spray pressure, using Fluxit alone, prior to harvest to penetrate and loosen residue coating, helps safety tolerance.

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Growing and Culture of Melons

I would like to secure some information on the growing and culture of melons. What kind of soil do they do best on? What kind of fertilizer should be applied on a dark sandy soil with a sweet clover crop plowed under? What kind of melons would be most profitable for this region?—Ohio.

I PRESUME you refer especially to muskmelons. Both muskmelons and watermelons are considered to grow best on sandy or sandy loam soils, although either and especially muskmelons can be grown profitably on heavier types of soil.

Nothing has ever proved of more value for fertilizing melons than the use of *well rotted horse manure* under the melon hills or plants. It is essential that this manure be thoroughly rotted. From 5 to 10 pounds are usually placed under each hill. It is not necessary to mix it with the soil. If the manure cannot be secured, very good results can be secured by using one-fourth to one-half pound of a 2-12-6 or a 4-12-4 fertilizer per hill. Melon plants are very easily injured by too much fertilizer. It is, therefore, essential that the fertilizer be well mixed with the soil before the seed is planted. A later surface application of nitrate of soda is also often helpful in enabling the vines to mature a late crop provided they have not been injured by other agencies. The nitrate of soda should be applied at the rate of 150 to 200 pounds per acre. Care should be taken to avoid getting the fertilizer on the foliage and against the stems. Less fertilizer especially nitrates will be necessary on the black soils than on the lighter or sandy soils.

I presume you expect to grow melons for a local trade. Hearts of Gold, Irondequoit, Bender, and Tip Top varieties are all excellent varieties for this purpose.

Results of Roadside Stand Survey in Massachusetts

IS SELLING through a roadside stand a satisfactory method for a farmer to dispose of his produce? Is it also satisfactory to the thousands of consumers who patronize them? Have certain abuses crept in that need any concerted action by stand owners and can the State be of service to roadside stands?

In an attempt to answer such pressing questions as these, says the Massachusetts Division of Markets, a survey of conditions related to roadside marketing of fruit and vegetables and other farm produce was made in the fall of 1928. Nearly 200 stands were visited by a representative of the Department of Agriculture, who gained specific information at each stand.

A summary of the results of the survey shows that the business is increasing and satisfactory to a large proportion of stand owners. Competition from individuals who buy produce in city markets and truck it to the country roadside representing it as fresh was reported as a problem in only one county. A majority of the stands sold their own produce or at least 75 per cent of what they sold was grown on their own places.

The department also sent out a questionnaire to consumers. Twenty-seven hundred were returned and their summary gives a picture of what consumers think about farmers' roadside stands. They reported that they want nearby products, want them fresh, and are willing to pay a premium for produce under these conditions.

The full report of the survey has been mimeographed by the Massachusetts Department of Agriculture under the title "A Survey of Roadside Stand Selling," copies of which may be obtained from Laurence A. Bevan, Director, 136 State House, Boston.

Trees Must Have Water

TREES need enormous quantities of water to keep them in a healthy condition, says the United States Department of Agriculture. An apple tree 30 years old gives off approximately a barrel of water a day in summer, and a good-sized birch tree gives off nearly two barrels of water on a hot day. A single oak tree is known to have given off into the air in the form of vapor more than 100 tons of water in a single growing season.

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Effect of Manganese Sulfate on Potatoes on Dade County Glade soil. Section on left received no Manganese Sulfate and section on right 50 pounds per acre.

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FIND THE TWINS! Be careful. Don't lose your chance. Study the eight heads shown here. They all appear different, but two are exactly alike—TWINS! Look at the hat crowns, hatbands. The under side of some hats are part black, some all white. Each girl has a name. If you find the twins, send me the names on post card or letter. If you have the right twins, you will be qualified for this opportunity and may receive prize or cash. Duplicate prizes in case of ties. No more puzzles. No obligation. Send no money, but HURRY!

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American Fruit Grower Magazine, 53 W. Jackson Blvd., Chicago, Ill.

The Monthly FRUIT and VEGETABLE REVIEW

By PAUL FROEHLICH
U. S. Bureau of Agricultural Economics

SEVERE low temperatures during the latter part of April did considerable damage to apples and peaches in eastern and northern producing areas, and damaged late strawberries in some sections. Cherries also were affected. A number of important apple districts may not have the heavy crops which were expected this season. Prolonged dry weather was affecting various farm crops throughout the South, the most serious effect probably being in the reduced yields. California grapes were reported to be in good condition, but condition of the apricot crop was spotted. Pear blight was becoming serious. Fruit trees in the Great Lakes region suffered considerable winter damage. Winter injury to cherries was said to be severe in parts of the Pacific Northwest.

By mid-May, the movement of apples had decreased to relatively small proportions; markets were rather dull. Strawberry shipments were at their peak and, because of lighter production this season, prices were well maintained, and were at a higher level than last year. Cantaloupe movement got an active early start in Imperial Valley, and watermelons will soon be coming from that area and Florida. The Georgia peach season also will soon be under way. Cherry shipments from California had already reached a considerable volume.

The Melon Situation

ACREAGE of cantaloupes and similar melons was very sharply increased in the Imperial Valley of California this year, and far exceeds any previous season's plantings. Production in the valley may amount to 8,144,000 crates, or 1,400,000 more than last spring. In a dozen intermediate or mid-season cantaloupe States, plantings of this crop may be 8% greater than last year's acreage. Arizona and Texas have greatly increased their acreage; Arizona alone expects the high total of 14,000 acres. Arkansas may show a 25% increase over its 1929 plantings of cantaloupes, but North Carolina expects a 50% reduction. In the late shipping States, acreage may be increased 5%.

The Imperial Valley shipping season opened earlier than usual, and movement of the first-maturing cantaloupes had reached a daily average of 30 cars by the middle of May. Light receipts were also reported from Mexico. During all of last season, Imperial Valley originated 14,300 of the total 28,150 cars of cantaloupes shipped in the United States. Jobbing prices in city markets had already declined to $10-$12 per standard crate of 45 melons from California and to $7 for Mexican stock.

Production of early watermelons is expected to be lighter than that of last season. Florida probably will have about 9,000,000 melons, as against 11,635,000 in 1929. Imperial Valley growers look for a crop of 7,600,000 melons, or about 1,300,000 more than last year. Acreage of watermelons in seven second-early States together is expected to be about 2% less than plantings of 1929. Georgia and Texas anticipate considerable reductions, but South Carolina a great increase.

Berry Movement Active

DROUGHT reduced the yields of strawberries in many of the early and second-early producing States, and may also cut the intermediate crop. The Louisiana season was somewhat disappointing, because all shipments did not carry as well as expected. Counties on the Eastern Shore of Virginia, Maryland and Delaware report acreage reductions of 10% to 25% from last season's harvested acreage. Dry weather last summer retarded the growth of new beds, and a cool spring hindered development of the crop. Condition of the New Jersey crop was below average.

Movement by motor truck was very active, especially in producing States along the Atlantic Coast. Rail shipments of strawberries had reached a weekly total of 1650 cars and were expected to go still higher before the opening of June. All the important States were shipping by mid-May. Heaviest movement of berries will be completed by early June, and then melons and tree-fruits will receive greater attention. The total market supply of strawberries so far this season has been about one-third lighter than last season to date. Growers received very encouraging prices, ranging from $3.50 to $6.50 per 32-quart crate in North Carolina, while the auction average in Louisiana was around $2.50 or more per 24-pint crate. Similar prices were obtained in other States, and terminal market values held up very well, at least during the first half of the strawberry season. Quality of many receipts was not of the best.

Apples Nearly Finished

COMMERCIAL cold storage holdings of 229,000 barrels, 2,436,000 boxes, and 769,000 bushel baskets of apples on May 1 were together only 3% greater than the cold storage stocks of a year ago and were 8% less than the average holdings for May. Barrels were short by 30% of the supplies on May 1, 1929, and were only about half as heavy as usual. Boxed apples under refrigeration were just about equal to the average figure for this time of the year, but were 10% heavier than last spring. Baskets were 30% more plentiful than in 1929, and 90% above average holdings. Considerably more than half the boxed fruit was still in Pacific Coast storages.

Shipments were down to a daily average of 70 cars, with two coming from the West for each car from the East. F.o.b. prices of best fruit still averaged only slightly more than $2 per bushel basket in New York State or per box in Washington. Markets were rather dull, as the apple season neared an end. Shipments by May 10 totaled 100,740 cars, compared with 126,000 the year before, and future movement will be very limited. City prices showed a slight upward tendency in May.

Citrus Movement Light

THE most noticeable feature of the citrus fruit situation lately has been the light carlot movement, compared with that of a year ago. During the second week of May, less than 1250 carloads of all kinds of citrus were shipped, while the output for the same period last spring was 4100 cars. Best grades of fruit were rather scarce. Imports of grapefruit still averaged about 20 carloads daily, but domestic output had dwindled to an average of 4 or 5 cars each day, after the finish of the Florida season. At the same time last year, about 100 cars of grapefruit were being forwarded daily. Lemon shipments compared more favorably with those of May, 1929, but oranges from California were down to about 100 cars a day, compared with combined Florida and California movement of 375 cars daily at the same time last spring. Prices have been high. Prospects are for larger crops next season.

Results of the Florida Season

AN editorial in a leading Florida paper contained the following information:

"Receipt of $16,000,000, net, by 12,000 Florida citrus fruit growers during the 1929-30 season is more than merely gratifying information. These millions of dollars will go very far toward offsetting the losses that were sustained in the season now ending, due to the Mediterranean fruit-fly scourge that fell heavily on this State in the past year, and that is not yet completely banished. Florida citrus fruit growers, therefore, are not as badly hurt, financially, as it was anticipated they would be when first the fruit-fly was discovered. . . . Growers are to be commended for putting into their business more of intelligence and more of business-like procedure, as by better marketing, made possible, largely, through practical cooperation."

Foreign Competition

BELOW is a summary of a report recently issued by the Bureau of Agricultural Economics, after a world survey of the citrus situation:

The American citrus-fruit industry is confronted with increasing competition in foreign markets from foreign producing countries in which production is stimulated by the steadily growing world demand for oranges and grapefruit.

Outstanding points in the world citrus-fruit situation are increasing production of oranges and grapefruit, with recent new plantings and large nonbearing acreages in a number of countries, pointing to continued future expansion; an upward trend in consumption of both oranges and grapefruit, particularly grapefruit, in the

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United States and the principal importing countries; and an apparently fairly stable lemon production situation, at a level, however, that necessitates the use of a considerable proportion in the manufacture of by-products.

Increasing production and export of oranges in the Southern Hemisphere, especially the Union of South Africa and Brazil, is regarded by the bureau as of special significance to California Valencia producers, with whose fruit the Southern Hemisphere product competes on European markets. Also, continued large Spanish crops, together with expanding production in Palestine, is considered to leave little prospect for volume exports of American oranges to Europe during the winter and early spring.

There has been a large increase in the consumption of oranges in northwestern Europe in recent years. Per capita consumption of citrus fruit in the United States is also on the increase. Per capita consumption figures place Australia in the lead, with a consumption of approximately 23 pounds of oranges per person annually; per capita consumption in the United States is 22 pounds; and in the United Kingdom and Canada 21 pounds.

Consumption in northwestern Europe ranges from 13 pounds for Netherlands to 5 pounds for Sweden. A large part of the variation in per capita consumption between different continental European countries can be explained by import duties. Consumption is highest in Netherlands, where orange imports are free, and lowest in Sweden, where the tariff on oranges is the highest in northwestern Europe.

The Vegetable Situation

ABOUT the only northern-grown vegetable still moving from storage was potatoes. Movement of sweet potatoes was very limited and was chiefly from the South. Fresh truck-crops from southern and western producing areas were very abundant by mid-May, and prices of most products were at a rather moderate level. However, old potatoes were ranging much higher than last spring. Prices of fresh vegetables tended downward with the increase of supplies. Western lettuce as well as green peas and tomatoes promise to be plentiful this spring, but southern cabbage, onions and cucumbers have been in much lighter supply than a year ago. Asparagus has been abundant, with prices moderate.

Potato Outlook

A LARGE crop of early potatoes has been moved from the increased acreage in the lower Rio Grande Valley of Texas, and the Florida season is near an end. Average yields in Florida were much lower than those of last year. Dry weather and early blight greatly reduced crop prospects throughout the South. In nine early-potato States together, acreage was increased 9% over their 1929 total but the indicated average yield was only 119 bushels per acre, or 7% less than last season. This would mean a production increase of only 2% or a total of 21,332,000 bushels. The Carolinas expect slightly smaller crops than last year, and carlot movement is already under way from that section. Virginia also may have a slight reduction from its 1929 crop Planting and growing conditions in Missouri, Kansas and Nebraska have been rather favorable. The Arkansas crop was doing fairly well. General condition of early potatoes in 10 southern States at the opening of May was 74% of normal, or about three points lower than a year ago.

Prices of southern potatoes have been rather encouraging. Florida attracted attention because of ability of growers and shippers in that State to maintain the price-level very firmly, while declines were occurring elsewhere. The f.o.b. market on best Spaulding Rose never dropped below $6 per barrel. Bliss Triumphs in Alabama, Louisiana and Texas were down to about $2.50-$2.75 per 100 lbs. by the middle of May, and terminal markets for these potatoes were declining. Carlot movement was rapidly increasing during May. The old potato season was closing with a record of 185,000 cars from the principal late States, or 9000 more than during the 1928-29 season. Higher prices this year attracted the larger shipments, in spite of lighter total production. Values declined considerably during April and May, when new stock offered competition, and those who held old potatoes for the spring market were a bit disappointed.

Cabbage Prices Lower

AFTER exceptionally high price-levels during the winter and early spring, the cabbage market had settled down to a moderate position and the entire situation was not so strong as expected. Shipments were still considerably lighter than those of a year ago, but prices tended downward with the advance

(To Foot of Next Page)

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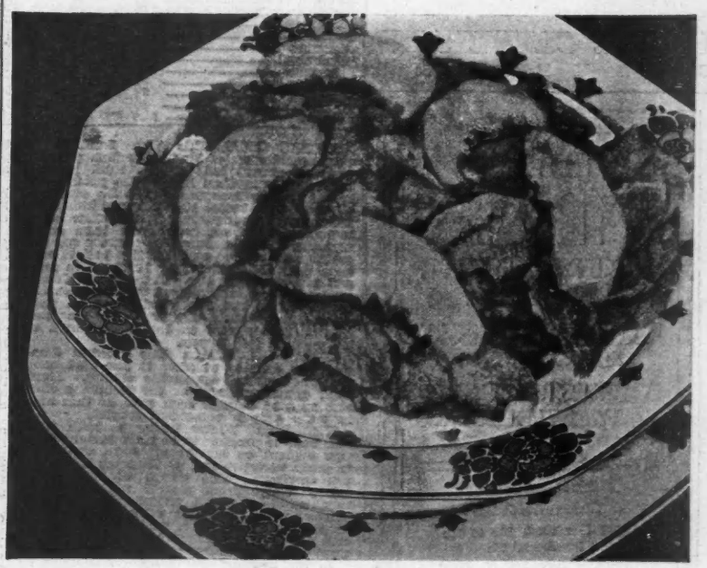

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Fruit Crop Prospects for 1930

THE FOLLOWING reports on fruit crop prospects as of May 1 have been assembled by the Division of Crop and Livestock Estimates of the Bureau of Agricultural Economics:

PEACHES

The condition of peaches in 10 southern States was reported on May 1 at 44.5 per cent as compared to 67.4 per cent last year and 73.8 per cent two years ago on May 1. The present condition indicates a crop of about 11,500,000 bushels, which would be about equal to the short crop produced in 1929 and about 35 per cent smaller than the five-year average production. The indications now point to a larger crop than last year in the five Coastal States from North Carolina to Alabama. In the remaining five States further west the prospects are for a crop below that of 1929. Of the more important States, Arkansas was the most seriously damaged during the past winter, very little commercial production now being anticipated in this State. Georgia prospects are for a larger crop than last year, but still about 32 per cent below the five-year average for that State.

Belle orchards are still standing. The emergence of curculio from hibernation was heavy but late. More effort is being expended to combat this insect. With all a rather heavy initial infection can be expected; fortunately, however, due to the late emergence it does not seem probable that there will be a second generation of worms this year.

ALABAMA: Some blooms were lost from cold early in the season, and recently drought has been severe, probably retarding development.

MISSISSIPPI: Only about one-half of a normal crop of peaches is expected this season. The full extent of damage from low temperatures and frost during the last week of March was not reflected in the April 1 condition reported. There was considerable dropping off of young fruit during April also.

ARKANSAS: Severe winter injury in Arkansas has about wiped out the peach crop in this State.

LOUISIANA: The peaches were badly winter-killed, and the condition is lower on May 1 than on April 1. During the last month the trees have had a chance to develop and show what they are going to do

PEACH REPORT, SOUTHERN STATES

STATE	CONDITION MAY 1					PRODUCTION		
	5-yr. aver. 1924-28	1927	1928	1929	1930	Harvested, subject to revision in December		1930 forecast from condition May 1
						5-yr. av. 1924-28	1929	
	Per Cent					1,000 Bushels		
North Carolina	66	39	78	76	60	2,028	1,400	1,914
South Carolina	66	40	82	69	60	914	552	1,044
Georgia	64	43	83	60	58	8,198	2,880	5,597
Florida	70	56	77	64	71	110	94	102
Alabama	63	44	77	61	61	1,118	504	1,098
Mississippi	66	55	71	70	52	575	444	387
Arkansas	66	52	67	80	2	2,386	2,635	100
Louisiana	64	48	69	67	48	206	154	128
Oklahoma	37	33	25	64	7	846	1,100	176
Texas	59	35	54	79	34	1,674	1,953	1,122
Average of 10 States	65.7	42.7	73.8	67.4	44.5	18,055	11,716	11,668

NORTH CAROLINA: The Sandhill or commercial area of North Carolina peaches contains almost half of the total bearing trees and more than half of the production. It is generally recognized that the commercial area is in better physical condition than for the past three years. On the other hand, home or farm orchards have been sadly neglected. The commercial growers are expecting to get a considerably better crop than they did last year. Farmers in general are expecting less. The dry weather is affecting the development of the peaches considerably. The sandy soil in which they grow does not hold moisture very long and rainfall is essential to the development of the fruit at this season.

SOUTH CAROLINA: The greatest damage was done to peaches in the Piedmont, centering around Greenville county. However, some orchards in the middle section also suffered damage from cold, so that even here the crop is somewhat spotted.

GEORGIA: Winter injury to both trees and buds is proving to be more serious than was evident on last report date, especially to early varieties and to Elbertas in southern territory. The extent of the winter injury varies from almost nothing to as much as 60 per cent in neighboring orchards. It has been estimated by some well-informed peach men in the State that around five per cent of all the commercial trees in the State were killed by winter injury.

In the Sumter and Dougherty sections of south Georgia, there is a fair crop of Elbertas in prospect. Hileys seem to have set a good crop everywhere. North of Macon, Elbertas have set a fair to good crop, and there is a good crop on what few Georgia

this season. However, the prospects are very poor. In some parishes, peaches are reported as practically a total failure.

NEW ENGLAND: In the southern half of New England, peach trees are in full bloom. Some peaches killed by low temperatures during the last week of April.

PENNSYLVANIA: Peaches severely injured by the frosts beginning April 22 and continuing for three nights. Damage was exceptionally heavy in the territory in the west central and southwestern parts of the State, in the Ohio drainage basin. Reporters anticipate less than half a full crop.

OHIO: The Ohio peach crop received most of its injury during the winter, from low temperatures. The Elberta crop is almost nil in north-central Ohio and very poor in other parts of the State. Other varieties of peaches are but slightly better than Elbertas and total peach production will be a very small quantity.

MICHIGAN: The peach crop is practically a failure in Berrien county and will be very light in Van Buren county. The outlook improves as one proceeds northward through the belt. The principal part of the damage to the peach crop occurred earlier in the season due to very low winter temperatures.

MARYLAND: Peaches in the eastern part of the State suffered materially during the past winter, the prospects being very poor. In the western fruit area (Washington county) winter injury to the trees was not serious but the low temperatures in April did some damage. Prospects for the State as a whole would indicate less than half a crop this year.

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The Fruit and Vegetable Review

(From Preceding Page)

of the season, partly because warmer weather reduces the demand for this crop. Nearly all of the second-early States looked for lighter production than last season. As a group, these seven States may have 81,000 tons of cabbage, or about 30% less than in 1929. Drought may further reduce prospects. Intermediate cabbage acreage is about the same as last year. South Carolina and Texas were nearly finished, and most of the supply was coming from Alabama and Mississippi. Shippers were getting slightly less than $2 per crate of 100 pounds. After very heavy imports from Holland, Denmark and Germany earlier in the season, arrivals from these countries had become negligible by mid-May.

Onion Markets Weak

THE trade did not take hold of Texas onions as eagerly as was anticipated, though quality has been generally good. Shipments have been one-third lighter than last season to date, but prices dropped quickly from their high opening level and were at the discouragingly low point of 75c-90c per crate, f.o.b. loading stations. With a crop estimated only 10% less than that of 1929 and shipments lagging far behind, market prospects for the tail-end of the crop were none too bright. Southern California movement was being delayed as long as possible and was still limited, because of market conditions. Acreage of onions in nine intermediate States is estimated at 8000, an increase of 8% over their combined 1929 plantings. Most of the increase is in New Jersey. The 16 important late-onion States may have 56,610 acres, compared with 54,310 last season, but this would be 15% more than their five-year average plantings.

Lettuce and Tomatoes

AT this time of the year, central California is the only important source of lettuce. The Arizona spring crop and Imperial Valley is finished, and southeastern producing areas make only light shipments of lettuce. Growers and shippers in California—especially in the Salinas district—therefore have the situation pretty well in their own control. Production of spring lettuce in parts of California outside the Imperial Valley was estimated at the high total of 4,680,000 crates, or 75% more than last year. Shipments had increased rapidly to a daily average of 250 cars, and cash-track prices in central California had declined to about $2 per crate.

The supply of tomatoes during June promises to be plentiful. Five second-early States together report 38,600 acres, or roughly one-fourth more than in 1929. Mississippi, eastern Texas and South Carolina show material increases. The intermediate tomato States may have 10% heavier acreage than last season, and plantings of this crop for manufacture show a probable increase of one-fourth. The Rio Grande Valley of Texas and parts of Florida were shipping actively during May. The season for imports from Mexico was closing with a record of about 5900 cars, compared with 4630 last year. Supplies were not excessive during recent weeks and the f.o.b. market was in a very firm position, both in Texas and Florida, around $3 per lug box.

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29x5.25 | 20in | 3.45 | 1.35
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31x5.25 | 22in | 3.45 | 1.45
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29x5.25 | 4.45 | 1.35
30x5.25 | 4.45 | 1.35
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Mr. W. K. McFarlin has prepared a pamphlet entitled "How and Why a Ram Elevates Water". This booklet, based on more than 25 years' experience in hydraulic engineering, contains much new information. Write for your copy—*free*. Rife Hydraulic Mfg. Co., Dept. 6, 90 West St., New York City.

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For Leaf Eating Insects, Bean Beetles and other Beetles, Insects and Worms.

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In quart, gallon, 5 gallons and barrels. Kills all unwanted vegetation. Low in price but efficient.

Sold everywhere by seedsmen and dealers in horticultural supplies. If your dealer cannot supply send us his address. Write for literature.

HAMMOND'S SLUG-SHOT — AN INSECTICIDE FOR GARDEN USE

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Now . . .

ETHYLENE RIPENING OUTFIT for only $14.75

Now any grower can afford to ripen with Ethylene. A new, inexpensive and accurate method of measuring gas flow has been devised, making it possible for us to offer the above outfit at less than half the price of any equipment that we have previously sold. This complete outfit, including gas, costs only $14.75.

Fill out the attached coupon and we will gladly furnish detailed information.

The Ohio Chemical & Mfg. Co.
Cleveland

The Ohio Chemical & Mfg. Co.,
1177 Marquette St., Cleveland, Ohio.

Please send me details about this new ripening outfit. Also please forward literature on Ethylene ripening.

Name .....

Address .....

City ..... State .....

A.F.G.-60

Marketing Watermelons

By Colonel L. Brown

CAREFUL GRADING for size and defects is highly important in marketing watermelons and often means the difference between good profits and heavy losses on cars sent to the larger markets. Just as soon as watermelons become even moderately plentiful buyers become critical on points that seem unimportant to the average grower.

Size is perhaps the most important single factor in establishing watermelon values. During recent years melons weighing less than 22 pounds have seldom shown a profit to growers and shippers except at the beginning of the season or during an unusually hot spell when the demand was active. In three seasons out of four watermelons averaging 32 pounds or more bring at least twice as much per car as those weighing 22 to 24 pounds. There is a sharp gradation in price with each two pound difference in size.

Irregular sizing is costly to growers and shippers and if possible there should not be more than a five pound variation in size. When a car contains watermelons ranging from 18 to 35 pounds all mixed together buyers are apt to base their bids on the size of the smaller melons. In other words, it is more likely to be regarded as a 20 to 22 pound car than as a 26 to 28 pound car.

All spotted melons should be eliminated at shipping point and it generally pays to treat the stem ends. When a car arrives showing even a small percentage of decay buyers prefer not to handle it except at low prices for fear of heavy shrinkage before they can finish distributing it.

A large proportion of the watermelons shipped to the larger markets are purchased by restaurants, hotels, and vendors at summer resorts, all of whom find that a large melon is most suitable for their purposes. In some markets pushcart vendors sell considerable quantities in small slices at a nickel or a dime each and they prefer the smaller sizes. Housewives, too, show a preference for large melons and prefer to purchase half a large one rather than an entire small one. For these reasons the larger sizes are invariably at a premium.

Weather has a marked effect on the demand. A cold spell in midsummer may cause prices to drop $100 per car in a single day, while a hot wave will result in an equally large advance. Not infrequently several days of hot weather will not only end a glutted market but will send prices to very profitable levels.

The demand for watermelons is most active from late June to late July; after that time it wanes perceptibly even though the weather remains hot. After the first of September urban consumers become apathetic about watermelons, possibly because of the greater quantities of other fruits and melons available.

New Book on Vegetable Growing

IT WAS only a few years ago that the student of vegetable growing had very little trouble in selecting a text book for there were only a very few books available. Now, however, the vegetable grower has an opportunity to select from a much wider list.

The first vegetable book to appear on the scenes in 1930 is "Vegetable Growing," written by Dr. James Edward Knott, Research Assistant Professor of vegetable gardening at Cornell University. Professor Knott was for several years head of the department of vegetable gardening at Pennsylvania State College. The author states in the preface that his aim has been to set forth the fundamentals of vegetable production, suggesting, whenever possible, the reasons for the methods followed and the plant responses obtained. Ten pages are devoted to a table of contents with a very complete index.

Practical growers will be interested in knowing how the author approaches his subject. Under chapter two, factors affecting plant growth, the following receives attention: composition of the plant, light, carbon dioxide, moisture, temperature, mineral supply, oxygen, soil reaction and disease. These are all covered in a matter of ten pages.

Dr. Knott has avoided the use of technical terms to a large extent and has made his book very easy to read and understand. The book is strictly up-to-date and at the end of each chapter is given a list of references called "Suggested Reading" which give the student or grower needed information for increasing his knowledge through the study of the special literature relating to the particular subjects considered.

The book is very complete, dealing with all the vegetable crops of commercial importance and some of the newer ones which are not largely grown. In writing about the crops there are general notes on culture, definite recommendations on fertilizer, some consideration of varieties, harvesting, storing, insects and diseases, and all in small space.

This book will make a valuable addition to the library of any vegetable grower and its purchase and use should be as profitable as the use of any other well adapted tool for the market gardener. —H. F. Tompson.

Mayor Jimmie Walker says there's no difference between the stock market and a horse-race. But did he ever see all the horses in a race suddenly turn around and start running backward?—*Nashville Southern Lumberman.*

Penny-Wise is Dollar-Foolish on VEGETABLES

DON'T make the big mistake of scrimping on plant food or using an inferior fertilizer. It may save a little on the per acre cost of the crop. But it loses a lot when you figure up your per acre profit later on.

Generous side dressing with the right plant food makes all the difference in the world in your vegetable crop. No need to gamble. A real application of Chilean Nitrate of Soda does the trick.

Chilean Nitrate is the world's only *natural* nitrate fertilizer. Speeds growth. Its nitrogen goes right to work. All plants like it. They digest it quickly. Vegetables grow bigger—mature earlier . . . are of better quality. Ship better, too! That means top prices. Be liberal with Chilean Nitrate now. That's the way to make sure of this year's crops.

Fertilizer Book—Free

Valuable book, "How to Fertilize Vegetables," tells how to use Chilean Nitrate of Soda for best results, with truck and all other crops. Free. Ask for Book No. 9 if you live in the North, No. 10 if you live in the South, or tear out this ad and mail with your name and address written on the margin.

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In replying, please refer to Ad No. 21-H

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BEARING APPLE ORCHARD. First-class condition. Crop on trees around seven thousand bushels. Farm land adjoining. One hundred seventy acres in all. Buildings, timber, water. Price low, terms reasonable. Friendly Fruit Farms, Clearville, Penna.

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CABBAGE AND WHITE BERMUDA Onion Plants, by express or parcel post, 500, 50c; 1,000, 75c. Wholesale Plant Grower, Marshall, Texas.

SWEET POTATO PLANTS. Ten varieties including Yellow Jersey, Nancy Hall, Red Bermuda, sixty cents hundred postpaid, three dollars thousand express collect. Wolford Bros., Conesville, Iowa.

HARDY CABBAGE PLANTS—Good delivery guaranteed. Leading varieties. 500, 90c; 1,000, $1.25; 5,000, $5.00. Buckeye Farms, Dept. Z, Box 541, Youngstown, Ohio.

POULTRY

WHITE LEGHORN HENS AND MALES NOW HALF price. Thousands of eight-week-old pullets. Also baby chicks and eggs. Trapnested, pedigreed foundation stock, egg bred 30 years. Winners at 20 egg contests. Records to 320 eggs. Catalog and special price bulletin free. I ship C.O.D. George B. Ferris, 922 Union, Grand Rapids, Mich.

SONG POEM WRITERS

SONG POEM WRITERS: "REAL" PROPOSITION. Hibbeler, D-96, 2104 Keystone, Chicago.

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BETTER TOBACCO—GOLDEN YELLOW SMOKING, 5 pounds, $1.00. Rich red chewing, 5 pounds, $1.50. Clark's River Plantation, 42, Hazel, Ky.

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Apple Growers

find Washing of Fruit Unnecessary

For two years, fruit growers have demonstrated that Verdol Summer Spray Oil as a second brood spray gives as good control of codling moth as does arsenate of lead, and leaves the fruit in condition to meet the government's arsenical residue requirements without washing.

VERDOL

Summer Spray Oil

The experience of these growers proves that Verdol

1. Reduces moth sting injuries
2. Insures better quality and grade of fruit
3. Helps control aphis, scale, red mite, leaf hoppers, etc.
4. Gives fruit a better finish
5. And in most localities, makes washing of fruit absolutely unnecessary.

The foregoing experience with Verdol in commercial practice has been verified by laboratory and field tests conducted over a period of three years by a number of state experiment stations. Recently the Spray Program Committee of the Illinois State Horticultural Society has unqualifiedly recommended summer oil sprays, to be used for late brood sprays "in order to conform to the rulings of the U. S. Department of Agriculture."

With the government's restrictions growing more severe every year, it is only a matter of time when the grower must decide between washing his fruit and using a summer oil spray. In many localities, the quantity of arsenic remaining on fruit approaches the maximum.

Even though the residue left on your fruit by an all-lead schedule may have been low enough to pass inspection, lack of rainfall during a dry season might leave sufficient arsenic to require washing this year.

Try Verdol this summer. Spray at least one block of your orchard. In this way you can see how effectively it controls codling moth, reduces sting, improves the appearance of the fruit, and cuts out washing. For information and prices, write to

STANDARD OIL COMPANY (Indiana)

910 South Michigan Avenue Chicago, Illinois

QUESTIONS and COMMENT

(From Page 8)

We suggest that you continue your spraying work, making the first application not later than soon after the shucks, or husks, fall following the blooming period. Two or three additional applications may be required at intervals of about 10 to 14 days. It is also important that thorough spraying work be accomplished.

Potassium Nitrate as a Fertilizer

Am interested in obtaining information as to the comparative merits of potassium nitrate and nitrate of soda for promoting growth in a young apple orchard. The experimental station at Wooster, Ohio, has very little information on the former available, although a friend of mine has had better results than with nitrate of soda. Would appreciate your personal opinion of this, together with recommended quantities. The trees were two years old when planted in the spring of 1928. The land is a clay loam and had been in pasture (sheep) for the preceding 50 years. It is rolling country.—*R. E. S., Ohio.*

FROM WHAT information we have at this station relative to the use and value of potassium nitrate, it has been shown that in general it is not as likely to be as satisfactory a fertilizer for all types of soil as nitrate of soda or sulphate of ammonia.

For your conditions, however, potassium nitrate might give good results, but we suggest before using the product as a fertilizer for the entire young orchard that you use the fertilizer on an acre or so this year, and if it proves valuable and worth while, greater quantities may be used in the future.

Suitable Windbreaks

What are the best trees to plant for a windbreak along an orchard? I have a 35-acre orchard about five years old which is situated on level ground. The land is level for miles on each side of my orchard. The south, southwest and west winds are very strong at times and this is causing the trees to lean badly if we do not keep them straightened up. I want to plant a windbreak along the southwest farm line, as my line runs in a northwest-southeast direction. Will you kindly tell me the best variety of fast-growing trees that will make a permanent windbreak? Some have told me to plant Lombardy poplar, about six feet apart and about two feet from the property line. Others have suggested planting Jack pine or yellow pine eight feet apart in a single row or 10 feet apart both ways if two rows are planted. I want to plant this windbreak in the spring.—*V. R., Pennsylvania.*

IT IS the general opinion of the best fruit growers that pines and spruce among the evergreens, and maples and poplars among the deciduous trees are the best adapted and most suitable for windbreaks.

Since your orchard is already started, may we suggest that you plant the Jack pine eight feet apart in a single row fairly near your farm line. Between the pines and the first row of trees you might plant the Lombardy poplar about six feet apart to act as a windbreak and protection to the orchard while the pines are growing large enough to be of some value in this regard. Perhaps no deciduous trees will make a more rapid growth or will in a shorter length of time give some protection against the wind than the Lombardy poplar.

How to Keep Down Weeds

Would you please advise me what would be best to put around my five-year-old apple trees to keep down weeds. Some tell me sawdust or cinders. Would either be all right?—*W. T., Illinois.*

IN ORDER to keep down weeds around your five-year-old apple trees, it is suggested that you use wheat straw or mowings from the lawn, or leaves of trees, which may be procured from various sources. In all probability such a vegetative mulch as suggested will give better results than a mulch of sawdust or cinders, which would, of course, keep down weeds. In general, the objection which may be raised against sawdust is that if the product is fresh, considerable tannic acid may be present and if the mulch be fairly heavy, the growth of the tree roots might be hindered. By using cinders, no serious results are likely to occur, and the only benefit derived would be perhaps the loosening of the soil where the cinders are incorporated in it by digging or hoeing about the trees.

Index to Advertisements

The concerns whose advertisements appear listed below are equipped to give prompt and satisfactory service to the American fruit grower. Most of them issue literature that is freely at the disposal of our subscribers. It is to the advantage of all that when writing to an advertiser you use the address exactly as it appears in the advertisement, and that you state in your letter: "I read Your Advertisement in AMERICAN FRUIT GROWER MAGAZINE."

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YOU CAN RIDE TO PROFIT, FASTER THAN YOU CAN WALK

How the Centaur does the work of man and team

The greater power of the improved Centaur tractor means that it does all work better and faster. You can plow a full 12-inch furrow, disc deeper, harrow cleaner, cultivate with single or double row cultivators, do all operations, faster, cleaner, better while you *ride*. Tools are available for all tillage work. Centaur has taken the small farmer off his feet and put him on the seat—you feel like working, there's none of that afternoon tired feeling. You do more with the Centaur as it carries you over the fields doing the work of man and team at any speed from 1 to 3½ miles per hour.

If you are running a small farm, an orchard or vineyard, send the coupon for more information.

CENTAUR TRACTOR CORPORATION
13 Main Street Greenwich, Ohio
Please send new catalog on Centaur Tractors and Tools.
Name
R.D. P.O.
County State

THE OSPRAYMO WAY IS THE RIGHT WAY TO SPRAY

A non-clog sprayer. Revolving agitator with brushes cleans suction strainers. We make hand sprayers, orchard power rigs, traction truck crop sprayers. A sprayer for every need, high pressure guaranteed. They double your dollars. Tell us your problems. Our 47 years' experience at your service.

FIELD FORCE PUMP CO.,
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Use EVER GREEN NON-POISONOUS INSECTICIDE to INSURE YOUR PROFITS
Write for FREE Sample and Quantity Prices
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Without Effort

For all bunching purposes Felins Bunch Tyer will save in time and labor many times the money you put into it. Without obligation, write for full particulars.

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RAISE CHINCHILLA AND NEW ZEALAND WHITE FUR RABBITS Make Big Money We Supply Stock and pay you following prices for all you raise: Chinchillas average $5 each—New Zealand Whites $2 each. 32 page illustrated book, catalog and contract, also copy of Fur Farming magazine, tells how to raise rabbits for big profits, all for 10c. Address OUTDOOR ENTERPRISE CO., Box 1102, Hudson Park, Missouri

This Fruit Went to the Laundry

(From Page Six)

fruit a day, and will be ample for any increases that our business may show in the next several years.

Improved Appearance of Fruit Should Offset Extra Cost

THERE are a lot of angles to this washing business that we can see now, and probably more that we will see later. It is to be expected that many dealers will begin to demand guarantees from shippers that their pack complies with the federal Pure Food Laws. So far but one firm has asked this from us, but we expect that all prudent buyers will be wanting it before long. It will be their protection against loss if fruit is condemned on account of spray residue. And it's likely that we really owe it to our customers to give them clean fruit. A look at the "sludge" in the bottom of the washing tank is convincing evidence that the fruit was not clean before washing.

We hope that the expense of washing, including depreciation, will not exceed two cents a packed bushel, and the improved appearance of the fruit should make it easy to offset this with better sales. We know that it will not pay to wash cull apples, and our growers are going to have to approach more nearly the Pacific Northwest methods and do better pruning and more thinning.

Farm Board Grape Industry Program

APPROXIMATELY 75,000 acres of the San Joaquin Valley vineyards were signed up under the Federal Farm Board plan during the first week of operations which commenced April 28, according to reports from the Fresno headquarters of the Statewide Organization Committee.

The entire acreages owned and operated by the large chain banks were among the first to be placed under contract. These properties included those of the Bank of Italy, the Security First National of Los Angeles, and the Bank of America. Local headquarters established in many communities of Fresno county reported receipt of the contracts of many large vineyard operators who had voluntarily submitted them.

In the northern counties, active solicitation of growers got under way following a series of mass meetings addressed by Dr. Theodore Macklin, official representative of the Federal Farm Board. Macklin explained that the assistance offered by the government depends upon an acceptance of the plan by 85 per cent of the grape industry. A Grape Control Board will be set up which will determine the annual surplus of grapes and remove it from the fresh and dried markets. Growers agree to pay a fee of $1.50 per ton for this purpose. The Farm Board has guaranteed to advance sufficient funds in 1930 to enable the control board to purchase the entire surplus regardless of its size.

Operating as subsidiaries of the Control Board will be the California Vineyardists' Association, California Fruit Exchange, California Raisin Pool, and Sun-Maid Raisin Growers. Under the Grape Control contract growers may ship or sell their grapes through any one or more of these agencies.

The statewide executive committee directing the operations of the signup is composed of the following: Dallas H. Gray, Armona; Vaughn D. Whitmore, Ceres; L. DeMartini, Concord; W. A. Collins and H. W. Wrightson, Fresno; A. L. Paddleford, Lodi; Benton Ballou, Ontario; Lesley Einstein, Reedley; Albert Haentze, San Jose; and P. E. McKinney, Ukiah.

Avocado Gaining in Popularity

ONCE considered a rare and expensive luxury, the avocado is becoming a standard fruit which, because of its high nutritive value, deserves a place in the diet. In oil content, ranging from 10 to 30 per cent, the avocado far exceeds any other fresh fruit eaten in the fresh state, while its two per cent protein is more than twice that in other common fruits. It possesses about 75 per cent of the fuel value of cereals and has far more than that of lean meat or eggs. Some 6000 acres in California and Florida are now planted to avocadoes, according to the United States Department of Agriculture.

BEAN FRUIT WIPERS—SORTERS GRADERS—WASHERS

The method of handling fruit from the picking stage to final disposal—affects selling prices, salability and profits. Proper cleaning, correct grading and careful handling can make your fruit above the ordinary and in this respect increase your profits accordingly. Hundreds of successful growers realizing this are already equipped with these advantages, scores of others are now installing this approved machinery and undoubtedly you, too, desire to know what the most modern methods are accomplishing along these lines.

BEAN-MOE FRUIT WIPER

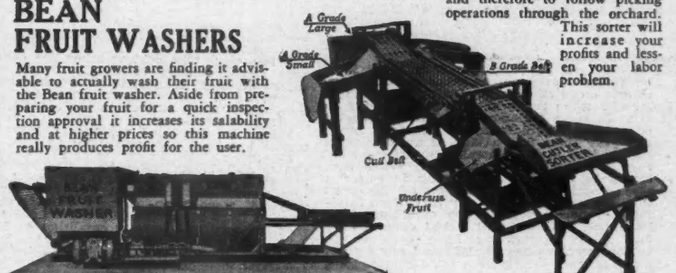
The Bean-Moe Fruit Wiper has earned a national reputation of paying for itself in a short time out of the added profits derived from the sale of extra clean fruit of fine appearance. You can run your fruit through this wiper and increase the quality of its appearance unbelievably and the quantity of better grades of fruit increases also as it is much easier to correctly judge quality. It removes dirt and shines up the fruit and does it quickly. This clean fruit will sell where uncleaned will not and it will bring a better price. It also speeds up handling and users say "saving in labor in sorting will easily amount to 50% as it has done for us. In forty days it paid for the outfit."

BEAN-CUTLER FRUIT SORTERS

Users say these sorters more than pay for themselves because of increased speed of handling fruit and greater accuracy which sorts into proper grades, generally a little higher than hand sorting. The accuracy and speed of this sorter is almost unbelievably perfect and with no damage to the fruit handled. The Bean-Cutler Sorter is designed for easy movement and therefore to follow picking operations through the orchard. This sorter will increase your profits and lessen your labor problem.

BEAN FRUIT WASHERS

Many fruit growers are finding it advisable to actually wash their fruit with the Bean fruit washer. Aside from preparing your fruit for a quick inspection approval it increases its salability and at higher prices so this machine really produces profit for the user.



Literature on any of these items or on sprayers or dusters for any purpose will be sent to you upon request.

JOHN BEAN MFG. CO.
DIVISION FOOD MACHINERY CORPORATION
15 Hosmer St. Lansing, Michigan
104 W. Julian St. San Jose, California

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of Aug. 24, 1912,

of American Fruit Grower Magazine, published monthly at Chicago, Ill., for April 1, 1930.

State of Illinois, County of Cook, ss.—Before me, a notary public in and for the state and county aforesaid, personally appeared Harry W. Walker, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Fruit Grower Magazine and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publisher—Magazines, Inc., 53 W. Jackson Blvd., Chicago, Ill.

Editor—Harry W. Walker, 53 W. Jackson Blvd., Chicago, Ill.

Managing Editor—Chester G. Campbell, 53 W. Jackson Blvd., Chicago, Ill.

Business Manager—Harry W. Walker, 53 W. Jackson Blvd., Chicago, Ill.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company or other unincorporated concern, its name and address, as well as those of each individual member, must be given)—C. A. Tupper, H. M. Sisley, Harry W. Walker, J. E. Montgomery (all at 53 W. Jackson Blvd., Chicago, Ill.); Chas. W. Price, Suite 601, 250 Park Ave., New York City; E. G. K. Meister, Standard Bank Bldg., Cleveland, Ohio.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: (If there are none, so state.)—None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

HARRY W. WALKER,
Business Manager.

Sworn to and subscribed before me this 25th day of March, 1930.
(Seal) A. C. BAMBERGER,
Notary Public.
(My commission expires Aug. 10, 1933.)

Fruit Crop Prospects for 1930

(From Page 14)

VIRGINIA: Peaches are almost a total failure.

TENNESSEE: Peaches continue in poor condition. Peaches are very thin and the June drop will probably be less than usual. Growers are generally putting forth more effort to control the curculio than a year ago. If the oriental moth does not take too heavy a toll, the production will probably reach 40 per cent of last year's crop.

IDAHO: Peaches will be very short, due to severe winter injury to the trees. The fruit season is about two weeks earlier than 1929. No frost damage has occurred so far, but the average date of last killing frost is May 14 to 19 in Weiser and Council valleys, May 9 to 19 in the Boise valley, and around May 23 in the Twin Falls district. Weather was good for the dormant sprays and conditions were generally favorable for pollination.

COLORADO: The Palisade district is being enlarged this year. Trees were in full bloom by April 15 and on May 1 the blossoms had fallen and the peaches were setting well. Peaches are considered comparatively safe from frost in the Palisade district by May 1. The North Fork peaches were damaged by low January temperatures. The trees are now in full bloom and the damage is less than earlier indicated. Losses are heavier in the Austin district where 60 per cent of the crop is in prospect. In the Redlands mesa it appeared a month ago that very few peaches would be produced this season. Conditions, however, are improving and college and railroad authorities now expect a 100-car crop. This district has never entered into commercial production.

WASHINGTON: Peaches expected to be half to two-thirds of a crop in Wenatchee district. In Yakima Valley (Benton county) peaches were winter-killed. Southern district peaches hard hit by frost. Light crop in lower Columbia district is anticipated.

OREGON: Severe winter freeze on peaches has materially reduced peach prospects in Wasco county. Peaches in southern Oregon have escaped serious frost damage and prospects are fair to good.

FLORIDA CITRUS PROSPECTS

The main citrus crop is in good condition. Satsumas in west Florida had a comparatively hard winter and reports are not very optimistic.

CALIFORNIA FRUIT CROP PROSPECTS

Conditions affecting the fruit crops have been very spotted; some areas reporting excellent crops of different fruits, while others for the same fruits show less than half or even in some instances less than a quarter of a crop. With many of the fruit crops this year there was a lack of uniformity in bloom; that is, the blooming period extended over a longer time than usual. When that occurs in California, it usually indicates a very spotted crop. With some of the crops it is too early to make any sort of an intelligent report, even on the condition. We have had no frost that would cause injury and such showers as have occurred in various sections have not caused any injury. From now on it may be a little bit different, as showers would materially injure cherries and apricots.

Apples: It is too early to report on the condition of apples. In some places they are only in bloom; but this lack of uniformity in blooming appears to affect apples as well as some of the other fruits.

Clingstone Peaches: A fairly good set of peaches was obtained from the profuse bloom this spring, but two of the principal varieties of Clingstones, namely, Tuscan and Phillips, are reported as "dropping" very heavily. Possibly weather conditions are to blame.

Freestone peaches are not showing indications of a heavy "drop" like Clingstones at the present time and a good crop of Freestones is in prospect.

Pears: Lack of uniformity in blooming is complained of regarding the pear crop. Pear blight is causing apprehension in at least two important pear growing areas. If conditions are favorable for its development and no attempt made to combat it, it will very materially affect the crop. As a general thing, there is a tendency to fight blight when it appears, so the principal thing we have to fear is favorable conditions for its development.

Grapes: Grapes are just getting ready to bloom. Favorable conditions after blooming will help the crop. If it is cool and cloudy, mildew is liable to develop early and materially affect the set of the crop. Soil conditions appear favorable and grape vines have developed a good foliage, so the principal thing now is favorable weather.

Citrus: A heavy bloom has appeared in all sections of the State on oranges, lemons, and grapefruit. That is all one can say at the present time. Of course, you cannot have a big crop without a good bloom, but sometimes you can have a very poor crop with a good bloom. Climatic conditions will help to tell the story later on.

Cherries: The cherry crop is very spotted, some varieties showing a very low condition in some localities and good in others. Late cherries seem to be a little better than the early ones. We are not looking for quite as good a cherry crop as we had last year, and last year was poorer than in 1928. Bings and Blacks show the poorest condition at the present time; Royal Anns probably the best; although conditions vary in the different cherry growing areas.

Plums: Reports generally are favorable to a good crop of plums.

Prunes: Prunes are spotted, like most of the other crops, although there have not been as many reports regarding lack of uniformity in blooming as in apricots and some of the other tree fruits. We can expect a better crop of prunes than was secured last year, but probably not quite so good as in 1927 and 1928 when the production was large.

Apricots: This is one outstanding fruit that showed particular lack of uniformity in blooming, and the reports on the condition of the different varieties show wide divergence. Early "cots" like Royals and Tiltons are generally poor; Newcastle, better; also Moorparks and Blenheims show better conditions. Southern California has two principal "cot" producing areas—Ventura county, and the Hemet Valley in Riverside county—both showing good crops, probably 85 per cent. The heavy producing "cot" areas—Santa Clara and San Benito counties—are not over 60 per cent of a crop anyway, possibly less. The San Joaquin Valley indicates less than half a crop of apricots. The same is true of the Sacramento Valley, but the latter is not a heavy producer. Altogether, the prospects for apricots are not good.

Almonds: Rather spotted, but the outlook is fair to good.

Walnuts: It is pretty early to tell very much about the walnut crop. It is more or less spotted, as some sections were slow in foliation, which usually affects the crop adversely. Here again we can say prospects are fair to good.

Special Note: Revision California Orange Production: 1929-30 season ending October 31, 1930—25,000,000 boxes compared with 38,705,000 boxes in 1928-29 season and 23,000,000 boxes in 1927-28 season.

Navel shipments are nearly over and Valencias of high quality beginning to move in considerable quantity.

CHERRIES

New York: Condition is reported as 86 per cent. With abundant buds, the prospects were very good except for sweet cherries in the Chautauqua section. Sour cherries comprise about 87 per cent of the total trees, and sweet cherries 17 per cent.

Pennsylvania: Condition 52 per cent. Cherries were severely injured by the frosts beginning April 22 and continuing for three nights. Damage was exceptionally heavy in the territory in the west central and southwestern parts of the State, in the Ohio drainage basin. Reporters anticipate slightly more than half a cherry crop for the State.

Ohio: Northern and northeastern Ohio may have from one-half to two-thirds of a crop but prospects are very poor in other districts. Sweet cherries seem entirely killed in many localities. Condition reported at 47 per cent.

Michigan: Cherries were just coming into bloom in Berrien and Van Buren counties at the time of the cold spell lasting from April 21 to 26, and the damage to the sour varieties was severe in those counties and to a lesser extent in other southwestern counties. In northern districts very little damage occurred because of the less advanced stage of the buds.

Wisconsin: The cold weather has caused only slight damage to the Richmond and somewhat more damage to the Montmorency cherries. In general there seems to be a good cherry crop outlook in the commercial sections of Wisconsin.

Missouri: Damaged not only during the winter but by March and April freezes.

Colorado: The cherry trees in Colorado are in full bloom (May 8). The buds on old trees were not damaged by the January freezes but those on two and three-year-old trees were thinned considerably. Reports from the Union City district indicate that the crop was in good condition on May 1 and about 80 per cent of a full crop is in prospect. Reports from the Fort Collins and Loveland districts of Larimer county where probably three-fourths of Colorado's cherries are produced are that the condition is at least 90 per cent of normal. It is entirely too early to estimate accurately the probable outcome of the crop.

Utah: The crop was damaged severely by freezing in January. A considerable amount, possibly two-thirds or more, of the dormant fruit buds of the sweet cherries were killed at that time. The sour cherries were practically uninjured. About 20 per cent of Utah's cherries belong to the sour or tart varieties and 80 per cent to the sweet varieties. The commercial areas in the center and south are reporting a good crop. It is to be understood of course that when we say one-third of the buds are killed it does not necessarily result in a loss of one-third of the normal fruit crop. Even a loss of half the number of fruit buds, if well distributed, would merely thin the fruit and might leave enough buds to make a full crop. Condition reported on May 1 was 80 per cent.

Washington: Bloom at first indicated a full crop in all commercial areas but winter injury developed around Grandview, Kennewick, Zillah in Yakima Valley; and down in the Walla Walla salient and around Clarkston. About 70 per cent of the crop is expected in the counties south of Snake River, and about 50 per cent in Benton county, Yakima Valley. In upper Yakima Valley 95 per cent of a crop is expected; and in the Wenatchee area a full crop may be harvested. In the Spokane area about 80 per cent. Season is two to three weeks early. Wenatchee and Yakima Valley are the major producing areas.

APPLES

New England: Apple buds are just beginning to swell with some orchards showing buds in the prepink stage, in the northern half of New England. Apples are just starting to bloom in the southern half of New England. Some apple buds have been injured in the lowlands. Baldwins, Duchess, Delicious, Gravensteins and other early varieties give promise of a heavy bloom, while McIntosh and Wealthy may be rather light. Apple trees are in full bloom on top but just starting underneath. A report from Connecticut indicates that apple scab is appearing unusually early this spring. However, it is thought that the dry weather now prevailing will check the infection somewhat.

Pennsylvania: It is too early to tell the extent of damage from the frosts beginning April 22 and continuing for three nights. Reporters anticipate, for the State, two-thirds of a full apple crop.

Ohio: In northern and northeastern Ohio apples were less advanced than in other parts of the State and injury there was not as great as in other areas. Baldwins in the north and northeast are reported to have a light set of fruit buds this year. Central Ohio orchards were severely injured by the freeze and in southern and southeastern Ohio only orchards at high elevation escaped very severe damage. In many of the southern and southeastern sections only a few Rome Beauty buds are reported alive.

Michigan: Early apples have suffered material damage but late varieties are less injured and are expected to show good prospects if future weather is favorable. The Baldwin, which is the chief commercial late variety, is likely to prove a light crop according to present reports. That variety bore rather heavily in 1929 and has a smaller setting of buds in consequence.

Missouri: Reports generally are for a fair prospect, although in the southern third the bloom came in the first 10 days of April, and some growers think that because of the heat blooms were hurried and proper fertilization by bees was not permitted. From the middle to the northern border blossom was not quite so early. The bloom was irregular on the same variety in different sections which, of course, is somewhat true in most years, although the bloom was not so early this year as in 1929.

Maryland: Some injury is reported as a result of the cold spell the latter part of April. Temperatures in some areas were reported to be as low as 25 degrees. Reports from Washington county indicate spottiness as the effect of this freeze, some orchards apparently being untouched, while in others early varieties suffered material injury.

Virginia: Damage to apples by frost from April 23 to 26 in the North Valley was considerable. Ice froze to one-fourth of an inch thickness in many sections. The damage is very spotted as orchards in the same locality escaped with little damage while others were practically wiped out. Usually orchards with high elevation and good air drainage escaped. In the Shenandoah Valley, Frederick county, around Winchester and North did not suffer as much from the freezes as did the section south of Winchester and Strasburg. In Shenandoah and Rockingham counties the damage is especially spotted but more severe than in Frederick. Most reporters from the valley say they will be unable to tell damage for 10 days or more. A special communication from a reliable source in Shenandoah county as of May 3 states that a considerable quantity of the blossoms that appeared to be good are now dropping. Also that in Mt. Jackson section fruit from profitable standpoint is almost a total loss.

Yorks seem to have escaped with less damage than have the Delicious, Stayman, Black Twig and Ben Davis, which suffered most in order named. In Rockingham the damage seems to be quite similar to Shenandoah county.

Trees that bore heavily last year are blooming sparingly this year. In the North Piedmont section dry weather seems to be affecting prospects more than frost damage. Orchards with good elevation did not suffer from frosts, while those in low places were badly damaged. Nelson county apples are setting well in mountain orchards, but poor on low ones.

West Virginia: Reports from West Virginia indicate some damage to apples from low temperatures during the last week in April. Temperatures as low as 22 degrees on April 24 were reported. The exact extent of the damage is not known. The most damage seems to have been in the Ohio Valley where the earlier varieties were probably the most affected. In the eastern panhandle section the country is very hilly and only the orchards in the lowlands received any great amount of injury. In the better located and well-protected commercial orchards the damage was not great and only served to thin out a bit. Early varieties in the eastern panhandle section are reported as being killed, while all late varieties are expected to yield quite heavy.

Colorado: Only scattered orchards were damaged by freezes, and commercial areas are generally in excellent condition. The first codling moth spray is being applied. Orchards are in full bloom. The Grand Junction area is decreasing in commercial importance each year. Serious infestation of codling moth is making it almost impossible to produce a good quality apple. A good crop is in prospect in that area this year. The North Fork district is bringing new orchards into bearing each year. Trees are in full bloom with a heavy set of blossoms. No losses from freezing. Apple prospects in other sections of the State are above average.

Washington: Prospects at present are for a good apple crop. Barring a late frost and a more than average drop apple production may reach the 1928 crop. Pollination conditions have been ideal.

Oregon: Although too early to tell definitely about the set of apples, there was an abundance of bloom in all sections and unusual efforts were made to insure pollination. Weather during pollination was fair. There has been no frost damage reported on apples.

PEARS

New England: In southern half of New England pear trees are in full bloom. A few pears have been killed by low temperatures during the last week of April.

Ohio: Generally prospects are reported poor.

Michigan: Pears have suffered to a considerable degree in the southern half of the western Michigan fruit belt.

Missouri: A few sections report damage from March frosts. Crop generally seems to have escaped damage.

Colorado: Over 95 per cent of Colorado pears are produced in the Grand Valley of western Colorado. Trees are in full bloom. Some losses from freezing but prospects are for a large crop. The danger of frost damage is nearly past.

Washington: Pear prospects are good at this time.

Oregon: Pears are setting so thick in principal pear sections that thinning will be necessary. Abundant blooms, perfect weather for pollination and no frost damage to date combine to make pear prospects at the present time the best on record.

FOREIGN FRUIT CROP PROSPECTS

The following information on foreign fruit and nut crop prospects has been received by the Foreign Service of the Bureau of Agricultural Economics.

European Deciduous Fruit Crops: The severe winter of 1928-29 is expected to be felt in smaller fruit production for a number of years in various European countries, especially in Czechoslovakia, Austria and Germany. In February, 1930, the heavy snows in Austria damaged fruit trees to some extent. Drought in Germany in 1929 did considerable damage to the trees, especially apples. However, with these exceptions, fruit crop prospects on the Continent appear to be favorable.

Canadian Apples and Pears: Some winter injury occurred to apple trees in British Columbia but a larger crop is expected than in 1929. Fruit buds are below normal in quantity in Ontario and Nova Scotia. Pear buds in Ontario do not indicate a very large crop.

Foreign Citrus Fruit: The orange crop in the Union of South Africa in 1930 is expected to be larger than in 1929, when about 1,200,000 boxes of citrus fruits were exported to the United Kingdom. Reports from Italy indicate that the production of verdelli (summer) lemons will be normal and that the quality will be good.

Mediterranean Almonds: The 1930 almond crop prospects in the Mediterranean Basin indicate a crop considerably under last year in Spain and the Balearic Islands and in the important Bari district of Italy, but the conditions in Sicily are still quite favorable, according to cables from E. J. Foley, American agricultural commissioner at London. The crops in all of these areas will be subject to serious damage from unfavorable weather until the end of May, states Mr. Foley. No reports have been received as yet for the producing districts in France or Northern Africa.

PACIFIC NORTHWEST SMALL FRUITS, MAY 1, 1930

Strawberries: Late in March, 1930, we issued a small fruit prospect summary in which we stated that indications were for a strawberry crop in western Oregon and western Washington about equal to that of 1929, which was considered to be about 75 per cent of a normal crop. But the plants generally have not set a normal amount of fruit, and there has been some severe frost damage (May 2-7). In the Grand Mound, Washington district, it has been stated that the damage amounts to more than 50 per cent of the crop. Some frost damage has also been reported from Hood River and other mid-Columbia shipping points. Except in a very few localities it now appears that strawberry production will be less this year than last. Just how much less will depend on weather conditions. With normal May weather, picking should be well under way in the packing areas before the close of the current month.

The Oregon-Washington 1929 frozen pack strawberry output was estimated at the equivalent of about 65,000 fifty-gallon barrels (about 14,500 tons) and the canned output required about 4500 tons. Carlot shipments in 1929 numbered 103 for Oregon and 61 for Washington.

Red Raspberries: Raspberry prospects have improved somewhat over earlier indications. Dead canes, and short bearing laterals bear evidence to winter injury, which is very "spotted" in nearly all districts. In the vicinity of Puyallup, Wash., it is expected that 1930 production will reach nearly normal tonnage, or an increase of 20 to 25 per cent over last year. Around Everett, Wash., and northward, prospects are about 75 per cent of normal, or about equal to 1929.

In the Gresham, Ore., area it now appears probable that this year's production will be about the same as last. Winter damage was pretty severe in some yards, but very uneven. It is not uncommon to find a yard with 20-25 per cent damage, and an adjoining yard practically uninjured. Young plantings appear to have withstood the winter situation better than older ones. In the mid-Willamette Valley the relatively small acreage appears not to have suffered much winter injury.

Oregon-Washington 1929 frozen pack raspberries amounted to about 3170 tons, and the canning industry used about 4870 tons.

Blackberries: Blackberries are mostly of the so-called Evergreen variety. In Oregon the greater part of the crop is harvested from wild canes, found in Puyallup Valley, Washington, this same type of berry is grown under cultivation. Early season prospects seemed to indicate only a moderate amount of winter damage, but at the present time it appears that the western Washington crop will not be more than 35 to 40 per cent of normal. Under this condition, there will doubtless be a considerable harvesting of wild berries, hence this year's pack will not fall in proportion to the supply of cultivated berries. The damage is so severe in some fields, that all of the bearing wood has been removed, so that the plants will "have a rest," only growing new canes for next year's crop.

The Oregon-Washington frozen pack output for 1929 was approximately 1300 tons, and about 9940 tons were canned.

Loganberries: Oregon Loganberries were hard hit by the winter damage. There are a few yards in normal condition with prospects of an average or better crop, while there are other yards which were so badly damaged that all of the bearing canes have been removed, and no berries will be produced this year. There are all gradations in condition between these extremes. It is doubtful if the 1930 crop will prove to be more than 50 per cent of normal. The 1929 crop was estimated at 75 to 80 per cent of normal.

Washington Loganberries are mostly grown on the islands and near by mainland of Puget Sound. They seem to have fared better than the Oregon Logans.

The 1929 Oregon-Washington frozen pack took care of about 675 tons and the canners used about 5320 tons.

Black Raspberries: (Black Caps): There are two Pacific Northwest sections where Black Caps may be said to be a major crop. The larger area is in the vicinity of Newberg, Ore., and the smaller tributary to Yelm, Wash. In the Yelm district there are some 250 to 300 acres all grown under irrigation. The Newberg area, including Springbrook, Sherwood, and Scholls districts, has close to 1000 acres. In the Springbrook area a considerable portion of the crop is dried. The Yelm berries mostly go to Puyallup and Olympia.

The 1929 frozen pack took care of about 235 tons, and the canning industry about 735 tons. About 125 tons of dried product were produced in 1929.

Gooseberries and **Red Currants** are near normal, but not extensively grown.

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